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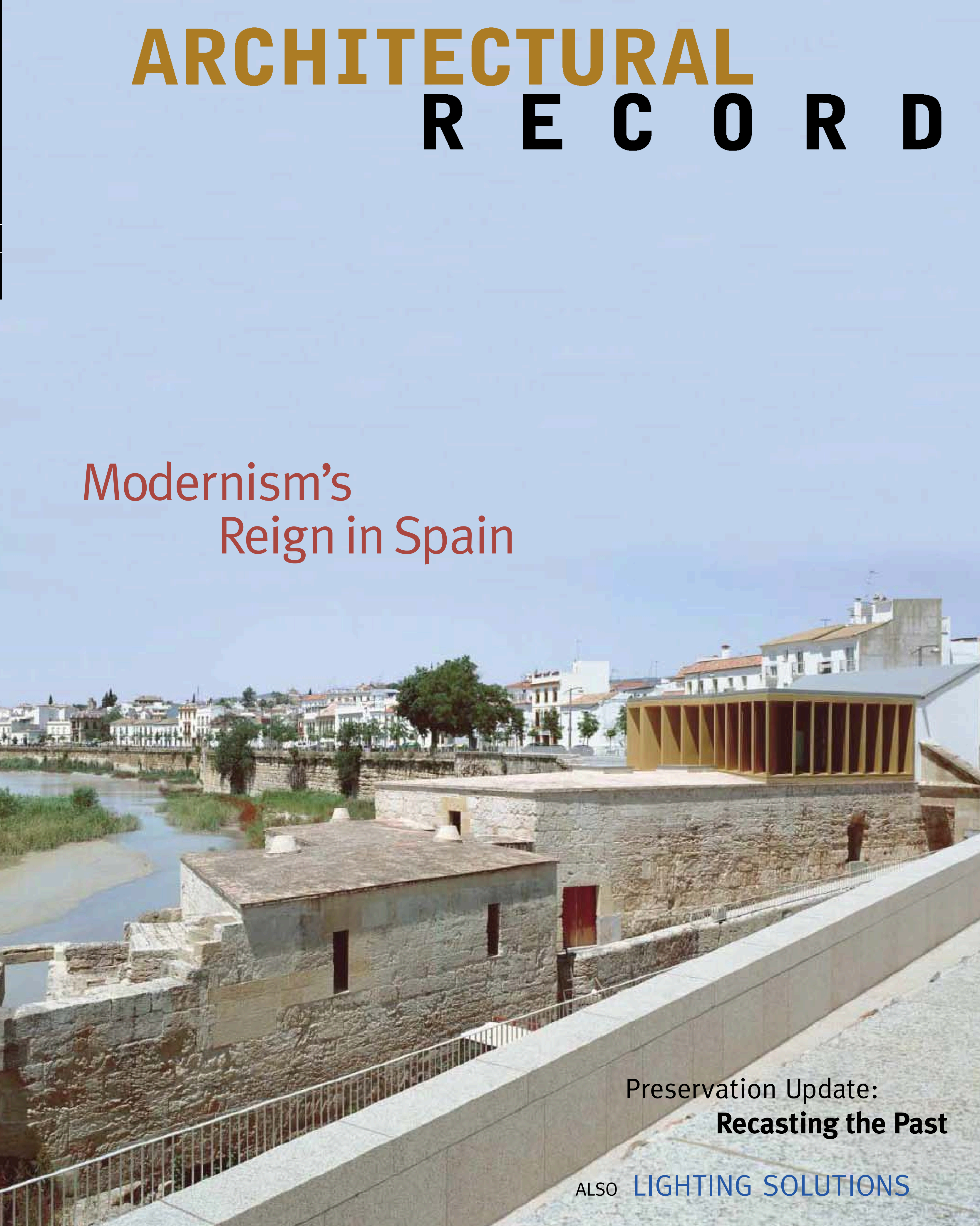

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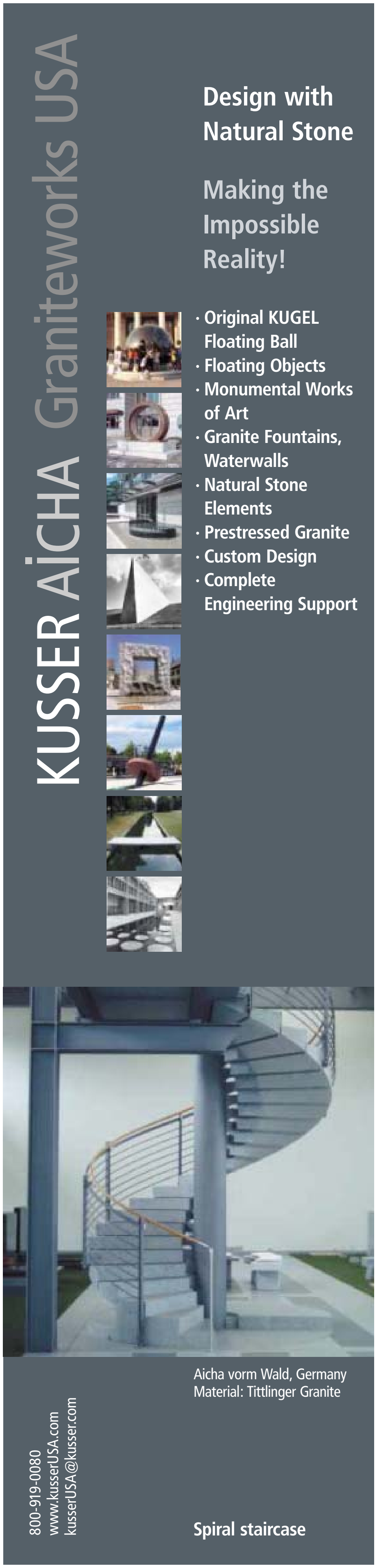
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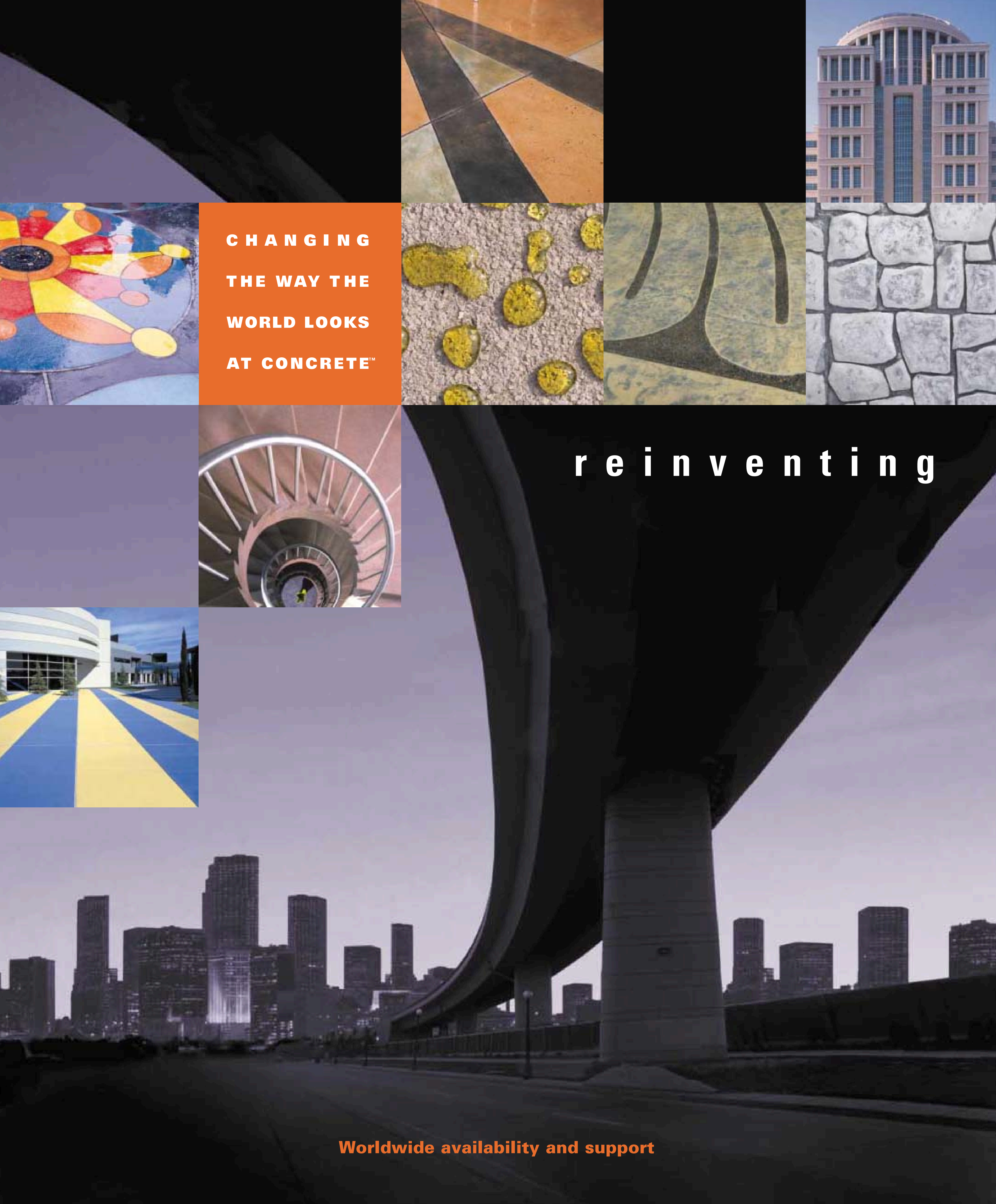

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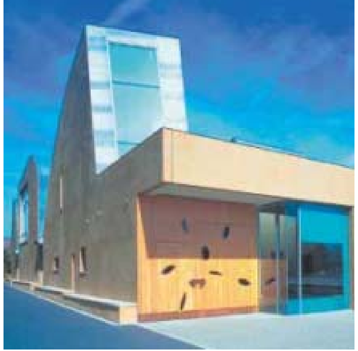
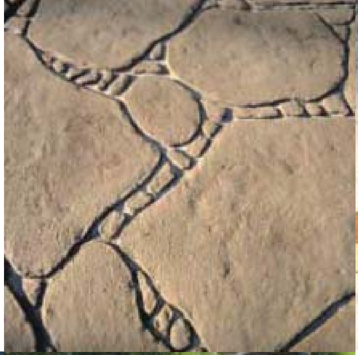

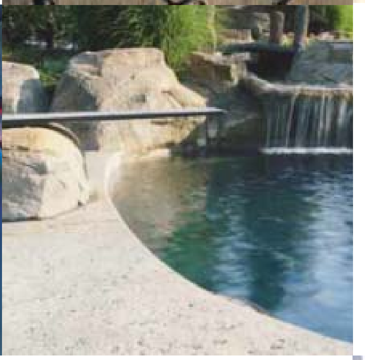

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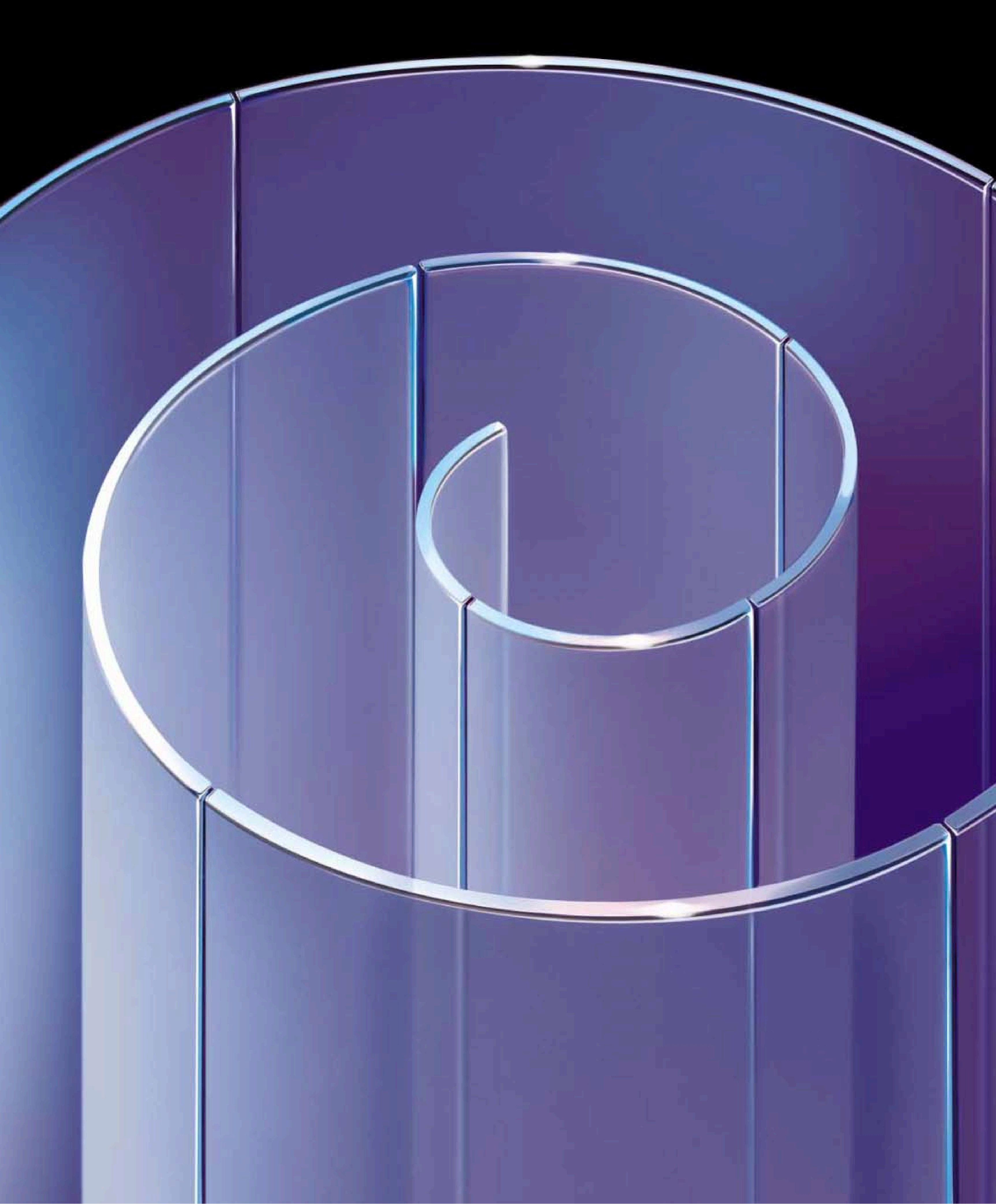

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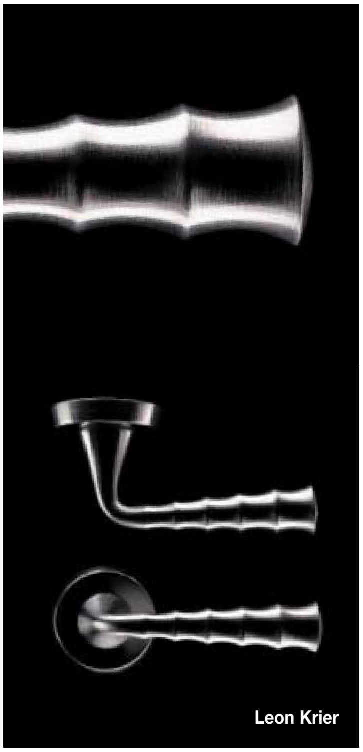

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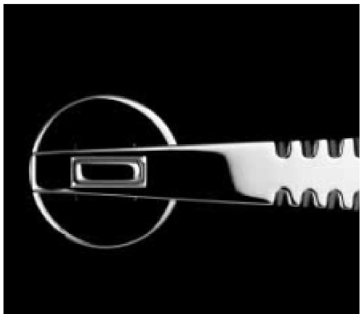

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On the Cover: *Guadalquivir River Promenade, by Juan Navarro Baldeweg. Photograph by Duccio Malagamba*
Right: *Jerez City Planning Offices, by Antonio Martínez García & Juan Luis Trillo de Leyva. Photograph by Duccio Malagamba*

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The AIA/Architectural Record Continuing-Education Opportunity *is "Giving Old Buildings a Reason to Live" (page 149).*

This month at archrecord.construction.com

March 2005

Projects

This month we explore Spanish architecture. With these seven projects, all outside of the typical design scene and from lesser-known architects, discover how Spain has become an architectural powerhouse.

Daily Headlines

Get the latest scoop from the world of architecture.

Project: MUSAC - Museum of Contemporary Art of Castile and León, León; Photography: © Roland Halbe

Hyde Park Bank, Chicago
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Building Type Study

All aspects of updating old buildings, from restoration and renovation to adaptive reuse, demand architectural creativity in shifting between the past and present.

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Chess Park, Glendale, California
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Lighting

In this quarterly section, illumination sparks the imagination from LEDs cloaking a retail mall to giant chess pieces aglow in a park.

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This month in Continuing Education

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Unveiling The New MasterFormat™ 2004 Edition

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This month: Bold invention overtakes steady progress as new concrete products create startling opportunities for architectural expression.

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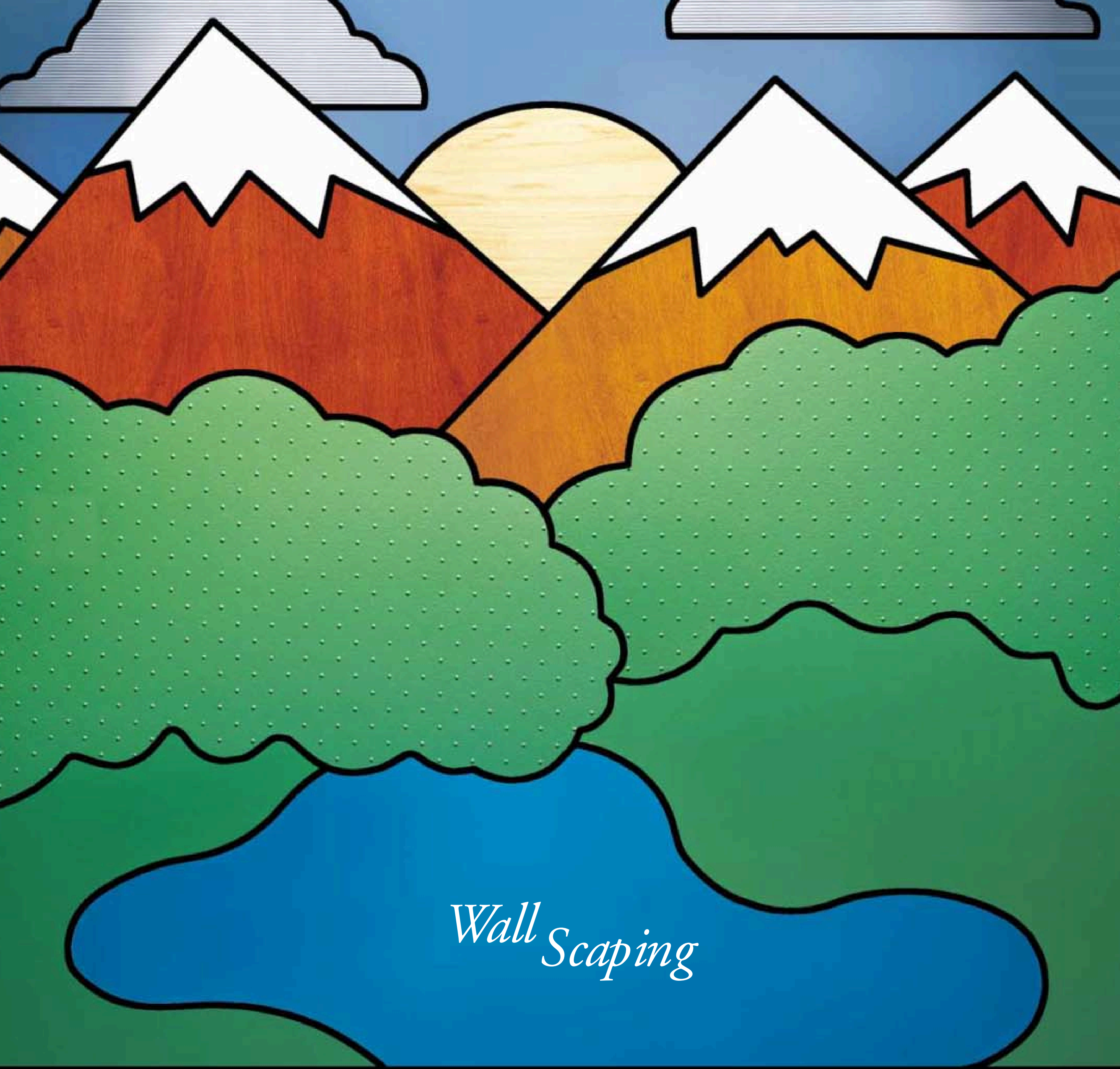

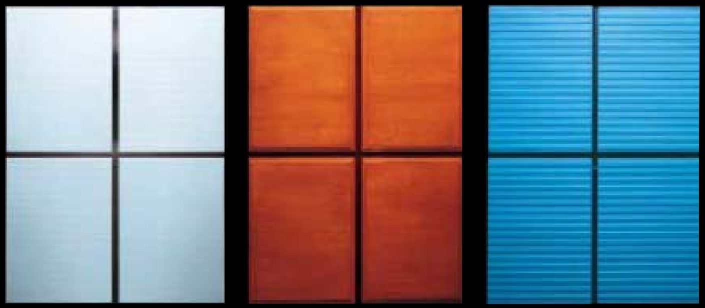

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Too Good to Lose

Editorial

By Robert Ivy, FAIA

Now what do we do? With the turn of a new year, Ed Feiner, boots and all, has left the General Services Administration. The fact that another public servant has left the world's most prodigious bureaucracy and joined the private sector would not normally set off alarms. However, Feiner made a tremendous difference. As chief architect for the nation's largest landlord, he oversaw the establishment of the Design Excellence Program, now in its 10th year, perhaps the most comprehensive and beneficial federal program for architecture since the New Deal.

What has Design Excellence accomplished? Its goals are lofty ones. The program represents a statement by government, backed up by investment, that design matters. At its core are principles articulated by the late Senator Daniel Patrick Moynihan, who saw our buildings and public spaces as collective expressions of our democracy. Clarity and a contemporaneous statement of public nobility were its hallmarks.

As constituted by the GSA, the program evolved from a structural framework, including a network of professional peers, into a procurement process and support system, all resulting in better federal buildings. Peers help the government choose designers, drawn from a shortlist, then critique designs, helping clients and architects through the nerve-wracking process of commissioning a new building.

The results have been impressive. Would Long Island or Phoenix enjoy the stunning courthouses that Richard Meier designed without Design Excellence? Probably not. With a few exceptions, the list of other well-designed courthouses alone that have emerged from the program is long and the design quality high, from Portland's iconic high-rise by Kohn Pedersen Fox to Boston's glazed, bayside sweep by Pei Cobb Freed.

Design Excellence has taken risks, encouraging the development of the nation's first (largely) unair-conditioned federal office building, designed by Thom Mayne of Morphosis, now under construction in San Francisco. Reaching outside the comfort zone, GSA has been tackling the thorniest of problems: what to do with the immense stock of ugly, thermally leaky 1950s and '60s buildings crowding its inventory. The horizon for such improvements seems limitless. Sustainability, security, urban fit—all lie within the program's expanding purview.

Part of the Design Excellence Program remains largely invisible. Professional peers can be called in to help on an ad hoc basis, as they were for the Orlando courthouse. When that project became contentious, landing on the cover of Architecture *magazine, the GSA summoned peer reinforcement. The resulting dialogue between the local federal judges, the GSA, and the peer group may have helped get the proceedings back on course, if for no other reason than as an expression of concerned support. (In full disclosure, this editor/architect served as a peer in the proceedings.)*

We mustn't exaggerate. Ed Feiner didn't run Design Excellence alone. Feiner enjoyed a professional partnership with Marilyn Farley, the program's eventual director, who guarded the consistent quality of everything emerging from the office, including a superb series of publications. Regrettably, she too is retiring. Regional offices of the GSA carried out the day-to-day workings of individual projects.

Design Excellence has not died. Today, Joseph Moravec, the commissioner of public buildings for the GSA and a former developer of commercial real estate himself, calls Feiner his "mentor" as a public servant, particularly helpful to him in recognizing the meaning of design quality. Moravec has fully embraced Design Excellence and espouses its tenets, a stabilizing factor that allowed Feiner to leave, knowing that enlightened leadership remains at the helm.

Moravec cautions that Feiner's departure "will not signal a retreat from the federal commitment to design in the public realm." In fact, he has initiated a search for a leading figure to head the $10 billion in design and construction projects overseen by the Office of the Chief Architect. Much remains to accomplish. By Feiner's reckoning, in addition to border stations, memorials, and laboratories, fewer than one third of a proposed total of 150 courthouses have been built. All are needed.

Institutional change provokes anxiety, not least when a strong, Bronx-inflected personality like Ed's recedes from leadership of a program with so much potential for good. Ed Feiner, go and prosper: You earned it. Joe Moravec, we know you will make a judicious choice for a replacement. But architects, remain vigilant. Design Excellence is too good to lose.

Robert Ivy

AR was the proud recipient of a ***National Magazine Award for General Excellence, 2003***

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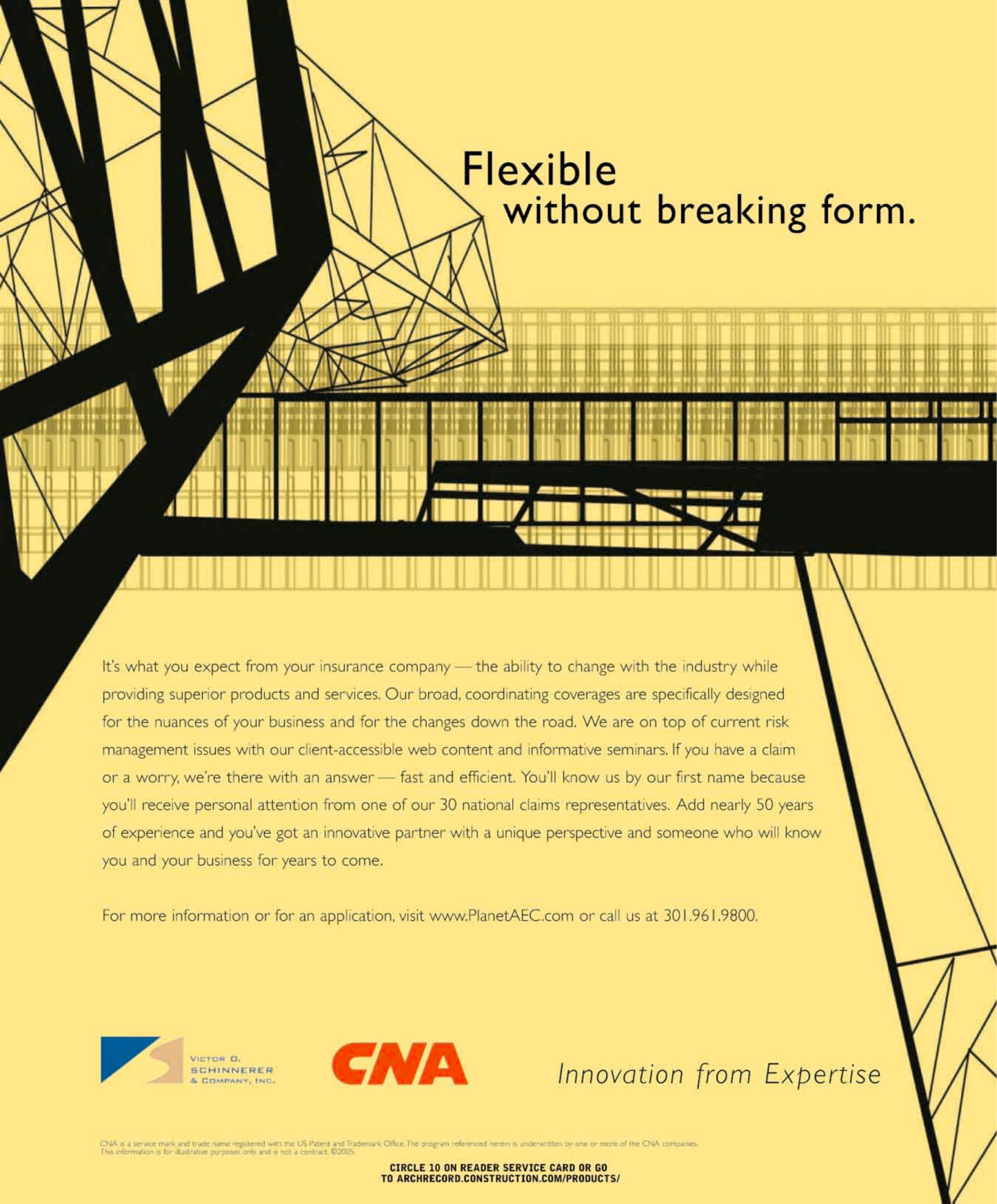

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Letters

Lothian folly?

Before your scribe left the subject of Enric Miralles's Mannerist composition [Scottish Parliament, February 2005, page 98], perhaps at least a single paragraph on societal responsibility would have been in order. Although there is some puffing about "deflated dollars," it appears from his account that the building cost is generously north of $2,000 a square foot. In time, the structure may come to be regarded as the Sagrada Familia of the Lothian plane; a new age of Periclean governance may issue forth from the Midlands. However, it is also fair to speculate that had Miralles been even a wee bit serious in thinking about economy, a striking building might have been contrived for, say, half what was spent. The difference could have been apportioned to dozens of talented design firms of all stripes in Scotland, England, Wales, and Ireland. In turn, they could have set to work building schools, health clinics, or assisting the National Trust for Scotland. This, I suggest, would have been an eminently more satisfying accounting of "how we carry ourselves" than the blatant nest-feathering so recently concluded in Edinburgh.

James McQuiston, AIA
Indianapolis

Two more cents

A decade or so ago, I was railing against the Prince of Wales for his supposedly backward views on "avant garde" architecture. Now I think he may have been onto something.

What a hideously ugly building the Scottish Parliament is. What a monument to vanity, artistic indulgence, and exhibitionism. With its forced egalitarianism and fetishistic use of building materials, this structure represents a hopelessly confused view of the world, built on tribal grievances, presumed past oppression, and paganism.

James McCown
Somerville, Mass.

Tsunami response

I am writing to thank you for your editorial on the tsunami [February 2005, page 17]. Your comments on the importance of longer-range design and planning assistance were expressive of how many of us feel. At Morgan State University's Institute of Architecture and Planning, I have redirected the efforts of my spring graduate architecture design studio to ask students to program and design a new hybrid building type, a resort hotel/community center.

This hybrid building type is intended as an economic-recovery keystone with specific social support links to the community. Possible inclusions are space for sustainable incubator businesses and vocational development. I am hoping the process of conceptualizing this building will open our minds to larger questions about society, tourism, ecology, social response, and design.

Ruth Connell, AIA
Associate Professor
Graduate Program in Architecture
Morgan State University
Baltimore

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Letters

The architect's softer side

Peter Eisenman got pretty roughed up in your interview of Jim Cutler [February 2005, page 72]. We know Eisenman to only be warm and fuzzy. To see that side of him, we recommend you check out the on-line video *Being Eisenman*, a personal portrait of Peter featuring nine of his well-known friends. This 21-minute video, which Fly on the Wall produced for his 50th reunion last June at Cornell Architecture, is being hosted by Cornell University at the Web site http://ifup.cit.cornell.edu/eisenman/.

You might find it interesting, as is Peter.

Phil Handler, AIA Emeritus
Fly on the Wall Productions
West Hartford, Conn.

Welcome to the third dimension

In your February interview with Jim Cutler, Mr. Cutler noted his preference for drawing freehand and his dislike for CAD, which highlights something of an irony: that the architect for perhaps the world's most important advocate of technology (Bill Gates) isn't aware of the importance of technology in the building industry and how it is transforming the role of the architect. Cutler states that the two-dimensional nature of AutoCAD prevents his staff from being able to see in three dimensions and, as a result, "There's a dimension they miss, and things don't fit."

Contrary to Mr. Cutler's views, technology is enhancing the design process. We have observed architects worldwide benefiting from that same three-dimensional insight that Mr. Cutler values so highly. Innovations such as the latest generation of building information modeling tools are opening new opportunities for insight and are providing architects with the ability to define the "third dimension" of design depiction and use that knowledge to accelerate the design process and their role in it. Many in the industry have yet to take advantage of these tools, but technology is inevitably being integrated into design activity and continuing to have a profound impact on our profession.

Phillip G. Bernstein, FAIA
Vice President, Building Solutions
Autodesk

Modern hazards

I read Suzanne Stephens's article on the new Museum of Modern Art [January 2005, page 94] very carefully. She covered all the issues with subtlety and grace. Clearly, the Modern made the right choice in selecting Yoshio Taniguchi. The museum is beautifully organized and embodies the calm that we expect from traditional Modernism. At the same time, however, the issues of craft and construction quality remain, as does the issue of relentless flat white paint and the almost terrifying atrium: Don't lean against the glass railing!

Peter A. Gisolfi, AIA, ASLA
Hastings on Hudson, N.Y.

Clarifications:

February 2005's Record News [page 23] noted that Sorg & Associates were the recipients of the AIA Honor Award in Regional and Urban Design for their Cady's Alley project. Credit should also be given to Frank Schlesinger Associates Architects, McInturff Architects, Martinez & Johnson Architecture, Shalom Baranes Associates Architects, and the Fitch Studio, Landscape Architect. Due to space constraints, not all recipients of the National Design Awards presented by the Smithsonian's Cooper-Hewitt National Design Museum could be included in RECORD's coverage [News, December 2004, page 28]. William McDonough, FAIA, was also among the recipients.

Write to rivy@mcgraw-hill.com.

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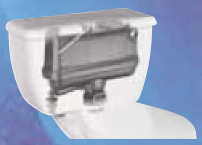

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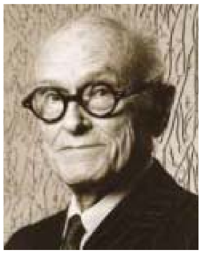
Record News

Highlights

p.24 **Jets unveil (another) new stadium design**
p.26 **AIA Awards season continues**
p.28 **Hadid headlines list of new London work**
p.34 **Special preservation report**

Architecture loses a father figure, Philip Johnson

Architect Philip Johnson, FAIA, regarded as a pioneer and master of the International Style, died on January 25, at age 98. Through his buildings, exhibitions, scholarship, and cultural persuasion, Johnson became one of the most influential designers of the 20th century. His curiosity, enthusiasm, and stewardship also inspired a generation of architects. He retired only last fall, after more than 60 years of practice.



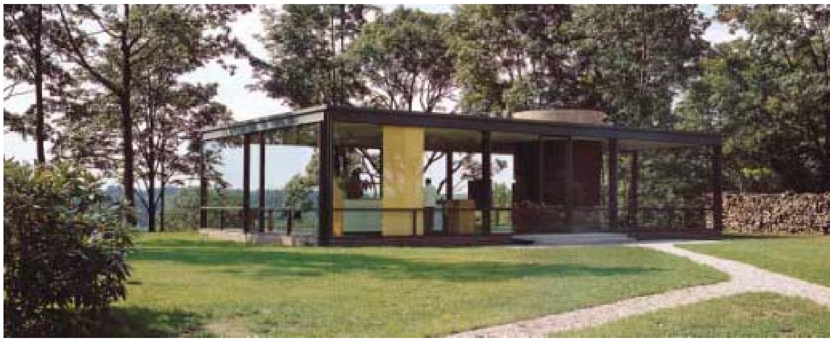
Johnson, who was born in Cleveland in 1906, won the AIA Gold Medal in 1978 and was awarded the very first Pritzker Prize in 1979. Among his many prominent projects are the Glass House (1949) in New Canaan, Connecticut, a clear cube praised for its elegance and simplicity; the eloquently quiet Abby Aldrich Sculpture Garden at the Museum of Modern Art (MoMA) (1953) in New York City (along with additions to the MoMA building in 1951 and 1964); the pristine yet geometricallly complex Pennzoil Place tower (1976) in Houston; and New York's AT&T Building (1984, now called the Sony Building), with its controversial Chippendale top.

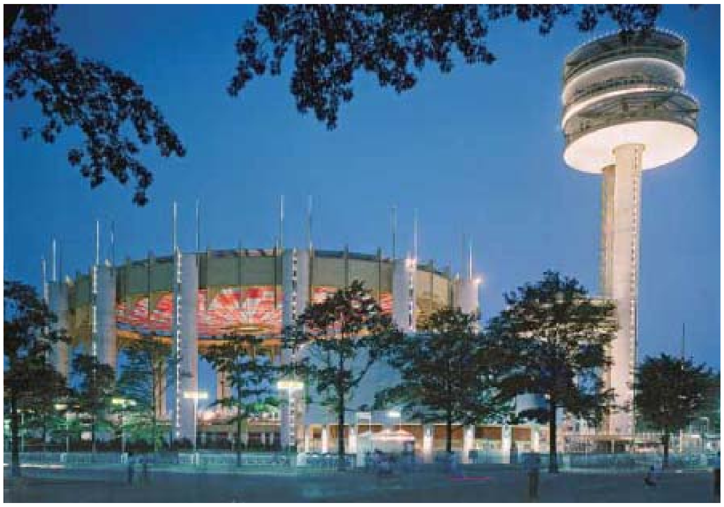
In 1932 he helped organize a MoMA show called *Modern Architecture*, which served to imprint the style into the American consciousness. His accompanying book, *The International Style*, written with architectural historian Henry-Russell Hitchcock, outlined the austere principles of that movement. Johnson became director of MoMA's new architecture department in 1932, continuing there on and off for more than 20 years.

He studied architecture under Marcel Breuer and Walter Gropius at Harvard, and was greatly influenced by Ludwig Mies van der Rohe. Gradually, Johnson's commitment to the simple forms of early Modernism began to change, and he explored new formal directions. He delved into Postmodernism, and later cocurated the 1988 MoMA show *Deconstructivist Architecture*. His Gate House in New Canaan (1995) contorts form in ways that would seem unimaginable early in his career.

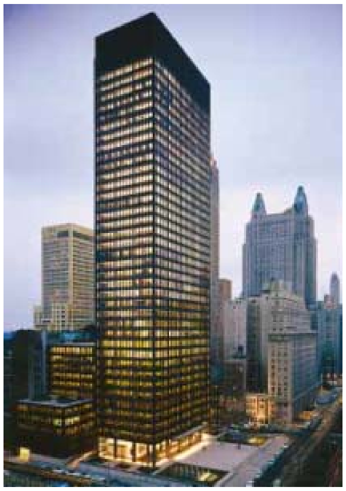
Certainly not all of his buildings were praised, but all, notes Robert Stern, FAIA, had a vision. "If you take risks, you can sometimes fall on your face; but without risks there is little reward," he says. Douglas L. Steidl, FAIA, president of the AIA, has stated, "He shaped each design anew in response to the dreams of his clients, the cultural influences of the time, and the intrinsic qualities of the site. He was a visionary architect who did not play by the rules; he made them."

Johnson was also a mentor, and the unofficial leader of various elite aesthetic circles. "We used to call him the 'Godfather,' because he was not only concerned with his own practice, but he was also concerned with the next generation," notes Peter Eisenman, FAIA, who says he went to Johnson for his "blessing" before starting his own firm. "He was a center around which we all revolved," adds Stern. "We wanted to please him and interest him."





The Glass House (top) is perhaps Johnson's most celebrated work. His collaboration with Mies on the Seagram Building (right) marked a pinnacle of the International Style. More experimental forms include the New York State Pavilion (above).



Johnson's life was not without controversy. He spent years trying to distance himself from an early fascination with Hitler and connected strains of authoritarianism, radical populism, and anti-Semitism. Many never forgave him, although Eisenman, who is Jewish, notes, "There are many people, like Philip, who realized that they were wrong, and have more than made up for it."

Johnson's firm, Philip Johnson Alan Ritchie, will continue to operate under Mr. Ritchie, who summed up the feelings of many: "Philip's intellect, presence, and enormous talent will be missed by all of us who knew him." Johnson is survived by his sister, Jeannette Dempsey, and by David Whitney, his companion for more than 40 years. *Sam Lubell*

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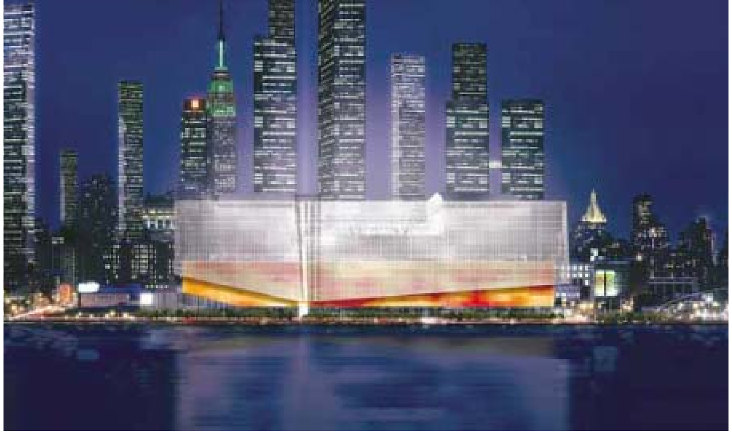


The new design for the stadium is draped by a glass "veil" (above) with an LCD screen on its lower levels.

New York Jets unveil smaller, quieter stadium. But its future remains in doubt.

If the people don't like it, shrink it. Then hide it.

So seems a major rationale behind the redesign unveiled on February 3 for the New York Sports and Convention Center, a.k.a. the New York Jets Stadium, which may or may not sit on the Far West Side of Manhattan as the centerpiece of the city's new Hudson Yards district.

The new plan, unveiled by Jets president Jay Cross and Kohn Pedersen Fox principal Bill Pedersen, is both smaller and quieter than the previous iteration—a nod to complaints about grandiosity and lack of urban integration.

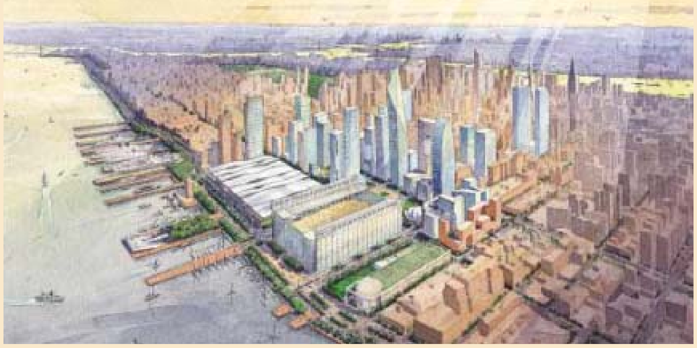
The new facade is dominated by a semitransparent glass "veil," which cloaks the stadium, emphasizing lightness, say its designers, by "hovering" over the lower portions of the exterior, never touching the ground. The design, "very quiet on the sky, and much more intense at the street level," says Pedersen, is meant to reflect the complexity and scale of the neighborhood's future instead of recalling the harbor's industrial past. A retail complex is also planned for the eastern side of the project.

At 190 feet, the new design is almost 40 percent shorter than the originally projected 306 feet, lacking the old plan's proposed wind turbines (the Jets say wind energy for the project will now be harvested upstate). A massive LCD screen on the east facade, designed by Bruce Mao Design, helps emphasize the horizontality of the building, drawing attention to the lower four or five stories instead of the entire facade.

The stadium's fate is extremely unsettled, since the New York Metropolitan Transportation Agency, which owns the land, was at press time taking bids for the site, and the city and state were grappling over it.

Many community critics remain unswayed by the new plans, still complaining about the project's size, its blocking of the waterfront, its lack of substantial economic benefit, and the disruptions it will bring to the neighborhood.

"They can clad it in whatever they want, it's not going to mask the fact that it's a stadium," says local architect and activist Meta Brunzema. "I don't think anyone's opinion will be affected by this new design." *S.L.*



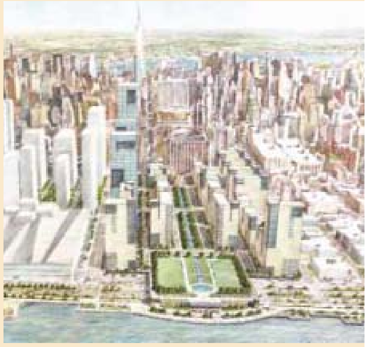
New York City approves Hudson Yards zoning

On January 19, the New York City Council approved the rezoning of much of the city's Far West Side, clearing the way for an unprecedented and long-anticipated new neighborhood in Manhattan: Hudson Yards.

Focused around a former city rail yard, the development (rendering, above) will be located on a roughly 40-square-block area bound by 42nd and 30th Streets, and 8th and 11th Avenues. Office space—24 million square feet, concentrated to the south and northwest—will dominate, intended to lure businesses that have been moving to New Jersey, Connecticut, and the suburbs. "It's a key to the financial well-being of the city," notes New York Department of City Planning spokesperson Rachaele Raynoff. The site will also contain housing (12.6 million square feet) and open space (20 acres, most on a north-west axis between 10th and 11th Avenues), creating what the city hopes will be a thriving, 24-hour community. A westward extension of the #7 subway is also planned, and the zoning takes into account an expanded Javits Center [RECORD, August 2004, page 30] and is expected to allow for a new stadium, if it is approved. The stadium's possible location is now zoned for manufacturing.

While the proposal was a resounding success in the council, some design experts and community members have questioned elements like the project's scale and lack of access to the waterfront. Rob Lane, director of the Design Program at the Regional Plan Association (RPA), fears an inhospitable "wall of looming skyscrapers," referring chiefly to a line of tall office buildings planned near the river. Lane adds that the scheme does not call for enough residential development, overestimates office demand, lacks sufficient public space, and concentrates development too far west from the existing business district.

City planning officials contend that commercial zoning can be changed if office demand doesn't materialize, and say developing farther east would involve excessive displacement. Raymond Gastil, the new Manhattan office director of city planning, acknowledges view blockages to the west and ambitious building scales (Floor Area Ratios reach 24), but notes that significant park and sidewalk space and careful building placement will mitigate the intimidation factor. Good design, he adds, will help improve the situation. "This is an opportunity for architectural quality and creativity," he says.



As for the district's proposed centerpiece—the stadium—the RPA proposes replacing it with a mixed-use development, linked via greenspace to the waterfront (rendering, right), citing greater financial rewards for the city and increased waterfront access. Meanwhile, a team of planners at the Steven Newman Real Estate Institute at City University's Baruch College has suggested moving the Javits to a spot over the Hudson rail yards at 9th Avenue, facilitated by a "land bridge," or decking, similar to what the city is planning to build under the proposed stadium. City planning officials dismiss both plans as financially, practically, and politically unrealistic. ***S.L.***

IMAGES: COURTESY NEW YORK SPORTS AND CONVENTION CENTER (TOP); NEW YORK CITY PLANNING COMMISSION (BOTTOM LEFT); REGIONAL PLAN ASSOCIATION (BOTTOM RIGHT)

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Awards season: AIA hands out more prizes

Following the bestowal of the AIA Gold Medal, Firm Award, and Honor Awards, other recent tributes from the American Institute of Architects include:

The 2005 American Institute of Architects' Young Architects Award
This award honors individuals who have made significant contributions to the profession early in their careers.
F. Michael Ayles, AIA, Stratford, Connecticut; Jeffrey DeGregorio, AIA, Boston; Miguel Rivera, AIA, Austin, Texas; Rick Harlan Schneider, AIA, Washington, D.C.; Eric Strain, AIA, Las Vegas

The 2005 AIA Thomas Jefferson Awards
This award recognizes excellence in architectural advocacy and achievement.
Public Officials: Charles H. Atherton, FAIA, Washington, D.C.; Private-Sector Architects: Carol Ross Barney, FAIA, Chicago; Public-Sector Architects: Diane Georgopulos, AIA, Boston

The 2005 Institute Honors for Collaborative Achievement
This award recognizes the achievements of those who have had a beneficial influence on the architectural profession.
ArchVoices, Albany, California; Randall Arendt, Narragansett, Rhode Island; John James, New South Wales, Australia; Barbara A. Nadel, FAIA, New York City; Schoolyards to Skylines, Chicago

ACSA/AIA Topaz Medallion
This award honors an individual who has made outstanding contributions to architectural education for at least 10 years.
Edward Allen, FAIA

The Gates: A titanic engineering feat

If you were sleeping under a rock, you may not have heard of Christo and Jeanne-Claude's *The Gates*, an art installation that took place from February 12 through February 28 in New York City's Central Park. It featured thousands of saffron-colored cloth gates mounted along the park's pathways, making the park part of an extraordinary public sculpture. Here are the big numbers behind the ambitious project:

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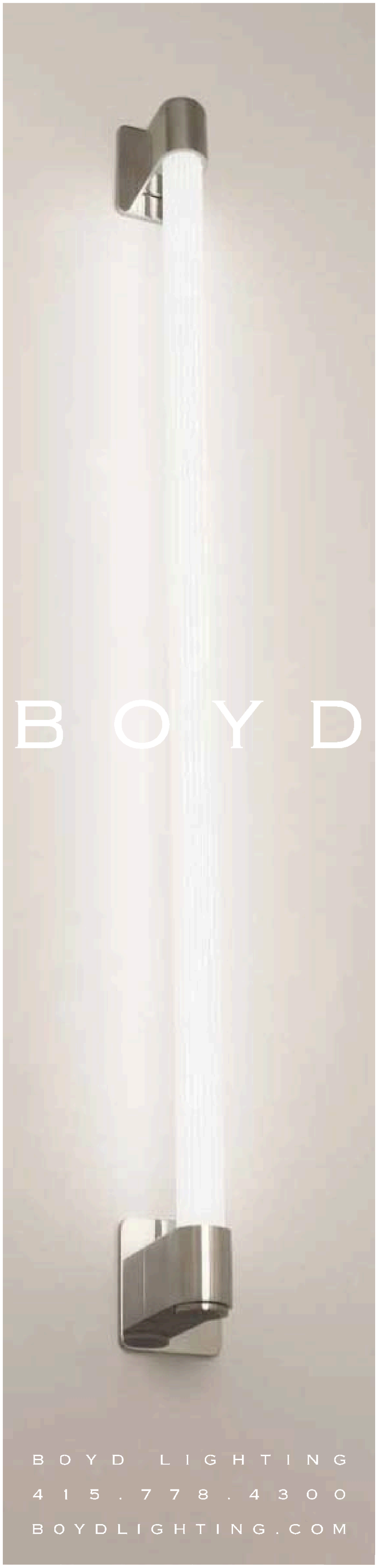

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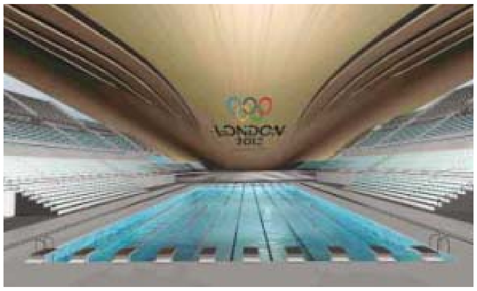
Hadid's work leads list of new London projects

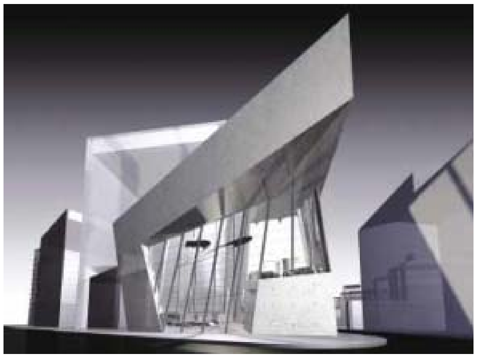
In January, London Olympic officials chose an aquatic center design by Zaha Hadid for the city's planned 2012 Olympic bid. The 20,000-seat venue, which will be built regardless of whether London takes the games (decisions will be made by the International Olympic Committee this summer), includes a dramatic, S-shaped roof, inspired, say officials, by the flow of water near the building's riverside location.

"The design gives a taste of just what we can offer and makes London's bid to host the games even more compelling," says the city's Mayor Ken Livingstone, who prompted the design process through the London Development Agency. The space will include two 50-meter swimming pools and a competition diving pool. It is the centerpiece of a 500-acre site that is expected to rejuvenate the distressed surrounding area of Stratford, in east London.

Hadid was chosen earlier last month to design the new home of the Architecture Foundation in London. Her design features an angular, solid concrete ribbon wrapped around a full-height glazed central space. The plan, whose permeability stresses the institution's public openness, will be located next to the Tate Modern in Southwark and will be the architect's first completed London work.

Other new local projects include recently unveiled changes to Exhibition Road, near the Victoria & Albert Museum, by the firm Dixon Jones, which will transform the fairly neglected street with new plantings, benches, fountains, sculptures, and lighting. Meanwhile, Swiss-based Herzog & de Meuron, which completed the Tate Modern 10 years ago, was selected on January 27 to design a major expansion of the facility. *Lucy Bullivant and S.L.*





Interior of Hadid's Aquatic Center (top), and her planned London Architecture Foundation (above).

IMAGES: COURTESY LONDON 2012 (TOP); CARO COMMUNICATIONS (SECOND FROM TOP)

Sri Lanka's "100 Meter Rule" raises concerns

In the aftermath of the December 26 tsunami in southeast Asia, the Sri Lankan government has banned constructing or repairing buildings within 100 meters (about 328 feet) of the shoreline, sparking complaints from civic organizations and citizens. The government promises that the estimated 750,000 citizens displaced by the tsunami will be given temporary homes within six months. Sri Lanka's President Chandrika Bandaranaike Kumaratunga announced a plan on January 19 to build 15 new townships located several miles away from beaches across the island, though details have not been released.

"Many leaders are opposed to the 100-meter restriction," says Kumar Rupesinghe, the chairman of the Foundation for Co-existence, at a press conference on January 20. The nonprofit organization promotes transparency and conflict resolution in Sri Lanka. The new policy requires those still residing within 100 meters of the coast to move, and police have been ordered to remove citizens who do not comply. But with enforcement lax and tents and relief camps still in short supply, many residents have ignored the policy and continue to occupy houses and temporary shelters within 100 meters of the beach.

"The government says to stay 100 meters away from the water, but they have not told us where else to go," says Imthiyas Careem, a resident of Hambantota, a district in southern Sri Lanka where more than 4,000 people died. Careem, along with hundreds of others, continues to stay at a relief camp that has been set up near a damaged mosque. Niranjan de Soysa, spokesperson for Sri Lanka's National Center of Operations, is wary of the efforts to move residents. "We will try our hardest, but I personally don't believe it is possible. There's just not enough time." ***Jen Lin-Liu***

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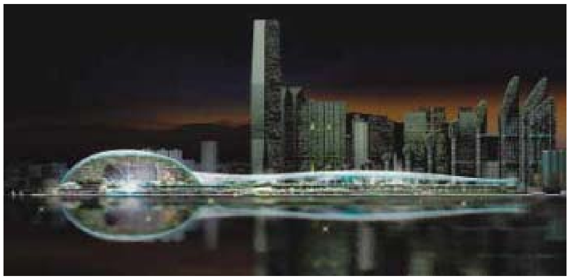
Local architects question Foster's Hong Kong project

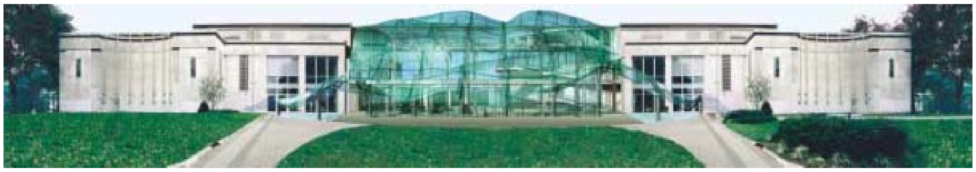

The roof will cover over 50 acres and cost over $500 million.

Controversy over the $5 billion West Kowloon Cultural Complex in Hong Kong, which was commissioned from Norman Foster back in 1999, has been heating up since the project's 16-week public review began in December.

Foster's proposal, situated on a peninsula jutting into Victoria Harbor, calls for a 390-foot-high glass roof, resembling, says his office, a "dragon," and covering several museums, concert halls, and theaters, and a school for the arts. The rest of the site would include office, retail, residential, and community facilities. According to Foster's office, all will be "sheltered and unified under a sinuous flowing canopy, which will create a benign microclimate."

While the government has justified the cost by branding it the new cultural icon for Hong Kong, critics have raised concerns about the roof, which covers at least 55 percent of the 100-acre site and is estimated to cost more than $500 million. They also wonder whether the project should be divided into smaller parcels and built incrementally. "Great cities are made up of neighborhoods that evolved over time—the richness, texture, and diversity essential to cities do not develop overnight," says Peter Basmajian, AIA, an architect based in Hong Kong. "This could turn out to be just another super mall." In recent days, the Hong Kong Institute of Architects has released a similar statement.

The government plans to bid the project to a developer in a "single package deal" where winner takes all. Critics have cited what they call a lack of transparency on financial proposals by the three finalist developers. As Christine Loh, C.E.O. of Civic Exchange, an independent think tank in Hong Kong, has observed, "The public is in fact the ultimate financier. So why can't the public know financial arrangements?" *Shirley Chang*



Queens Museum drops Eric Owen Moss from renovation

Three years after selecting Eric Owen Moss to renovate its Flushing Meadows-Corona Park building, the Queens Museum of Art is going back to the drawing board. The former New York pavilion for the 1939 and 1964 World's Fairs, the museum includes Robert Moses's famous panoramic scale model of the city. Moss's scheme, featuring a dramatic drape of his signature rippling glass over a new atrium and earthworks (rendering, above), was the December 2001 winner of the first national design competition held by the New York City Department of Design and Construction (DDC).

Current museum executive director Tom Finkelpearl notes, "We liked the basic design idea, the open gesture," but after several redesigns addressing issues of circulation, the treatment of the Grand Central Parkway–facing rear facade, and a tightened $27 million budget, "It wasn't jelling from a practical perspective."

"It was a classic case of new people coming in and wanting to own the project," says Moss. "I always felt an allegiance to the project, the [competition] jury, sustaining the process. They decided to turn their back on all that and go to a back room."

The museum and the DDC have stated that they expect to choose a new designer soon from a shortlist of mostly local firms, including Fox & Fowle, Polshek Partnership, SOM, Arquitectonica, 1100 Architects, Gluckman Mayner, Grimshaw Architects, and Rafael Viñoly, who have standing contracts with New York City under the DDC's Design Excellence Program. "We're not giving up on good design," says Finkelpearl. "These are architects who have done business with the city and know how to do it." *Thomas de Monchaux*

IMAGES: COURTESY DYNAMIC STAR INTERNATIONAL (TOP); ERIC OWEN MOSS ARCHITECTS (BOTTOM)

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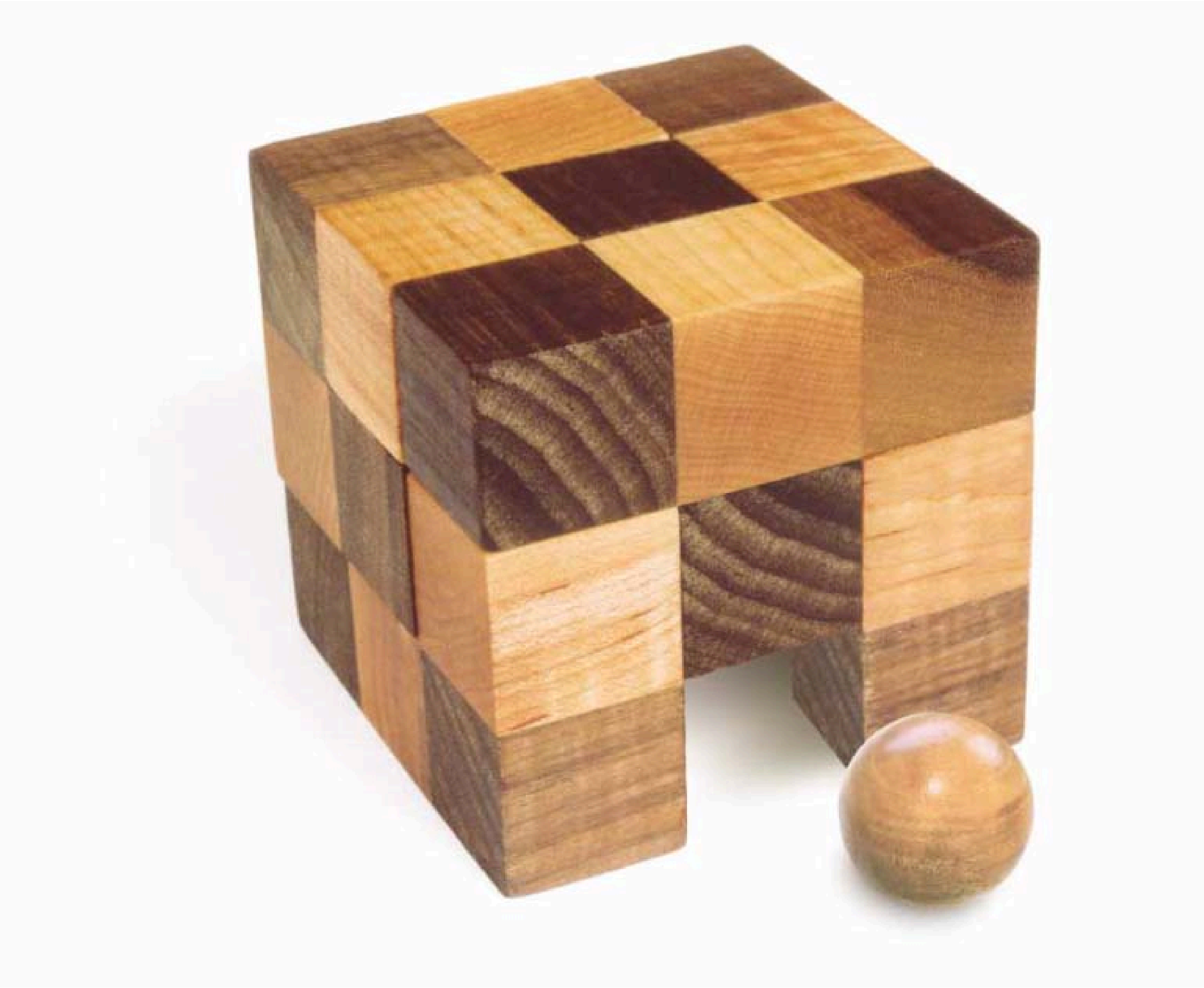

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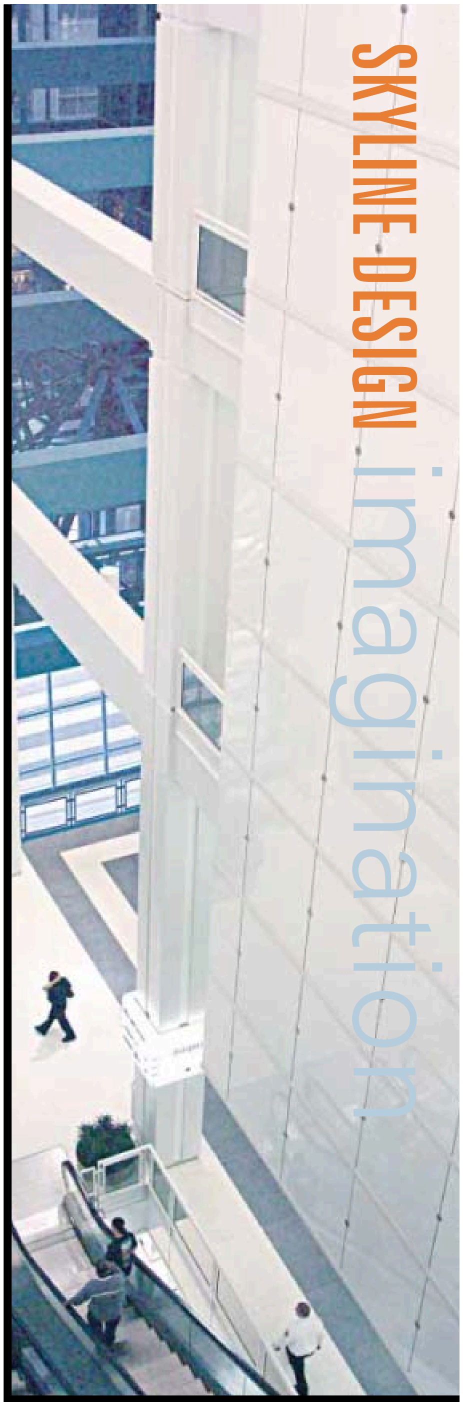

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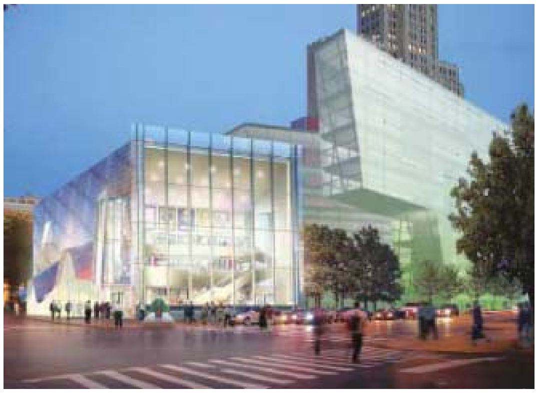
Gehry and Hardy unveil new Brooklyn theater

After years of producing wildly curvaceous buildings, Frank Gehry, FAIA, appears ready to use—at least for a while—straight lines.

On February 3, Gehry and Hugh Hardy, FAIA, of H3 Hardy Collaboration, unveiled their new $35.8 million Theater for a New Audience in downtown Brooklyn, a 299-seat flexible theater that will essentially be a box clad in large, stainless-steel shingles and angled planes of glass.

The theater company, which specializes in Shakespeare and the classics, wanted to utilize the cube shape to maximize simplicity and intimacy and, says Hardy, to replicate the courtyards where Elizabethan theater was performed. He adds that the rectilinear shape—a sharp departure from much of Gehry's recent work—helped draw the architect to the project.


The theater's glass facade will reveal a lively interior.

"It became a challenge for both of us," Hardy says. "What do you do to a box to make it interesting?" For starters, the 58-foot-tall building's front facade will feature a massive curtain wall revealing a bright, lively interior; its side-placed, patterned stainless-steel shingles will glimmer in the sun; and undulating metal flourishes, also on the sides, will identify administrative spaces.

Inside, the theater will contain three levels of reconfigurable seating. It will also contain a 50-seat rehearsal/performance space, a café, a roof garden, and the administrative offices.

The design is part of a new Brooklyn Academy of Music (BAM) Cultural District that includes a future performing arts branch of the Brooklyn Public Library (at right in photo, left), designed by Enrique Norten; a recently completed renovation of a former state office building into affordable office space (mostly for arts organizations); and a future cultural facility (proposals from cultural organizations were due on February 7). Norten and Hardy will collaborate on a 38-foot-wide public space separating their two buildings. The theater will receive $6.2 million in city support through the BAM Local Development Corporation. *S.L.*

Too much scrutiny of Gehry's glitches?

The year's first major snowfall brought attention to Frank Gehry's sinuous BP Bridge at Chicago's new Millennium Park. City officials closed the 925-foot span for several days in January before carefully clearing a path. Shoveling is possible along the bridge, but the Brazilian hardwood surface requires delicacy. Salting is not an option, due to the bridge's stainless-steel sides.

The broad acclaim for Gehry's distinctive designs seems to bring equal scrutiny for every minor glitch. The Guggenheim Bilbao was cited for exterior staining, MIT's Stata Center reported leaks, Los Angeles's Walt Disney Concert Hall's metallic sheathing has produced excessive glare [RECORD, January 2005, page 30], and the Peter B. Lewis Building at Case Western Reserve in Cleveland showed an early tendency to shed ice. "It's the rare and probably nonexistent building that doesn't need to be 'tuned' once built," states Donna Robertson, dean of architecture at Chicago's Illinois Institute of Technology, who has worked with Rem Koolhaas and Helmut Jahn on new buildings. She says she is still dealing with maintenance issues for Mies van der Rohe's Crown Hall (see page 38).

Gehry partner Jim Glymph notes, "Many of our projects are high profile and are therefore exposed to a higher level of scrutiny." Each of the cited examples has received a level of resolution. At Bilbao, construction dirt (reports of staining were false) was cleaned. Stata's leaking has stopped since completion. Disney's glare should be solved with sandblasting. Meanwhile, Glymph says clients for the BP Bridge (like those at Case Western), planning for it to be regularly closed in winter, had directed Gehry not to develop ice- and snow-melting systems. Millennium Park design director Ed Uhlir is surprised by the continuing popularity of the park at this time. "If there was snow in the park," he states, "we figured not many people would want to cross the bridge." *Edward Keegan*

IMAGE: COURTESY THEATER FOR A NEW AUDIENCE

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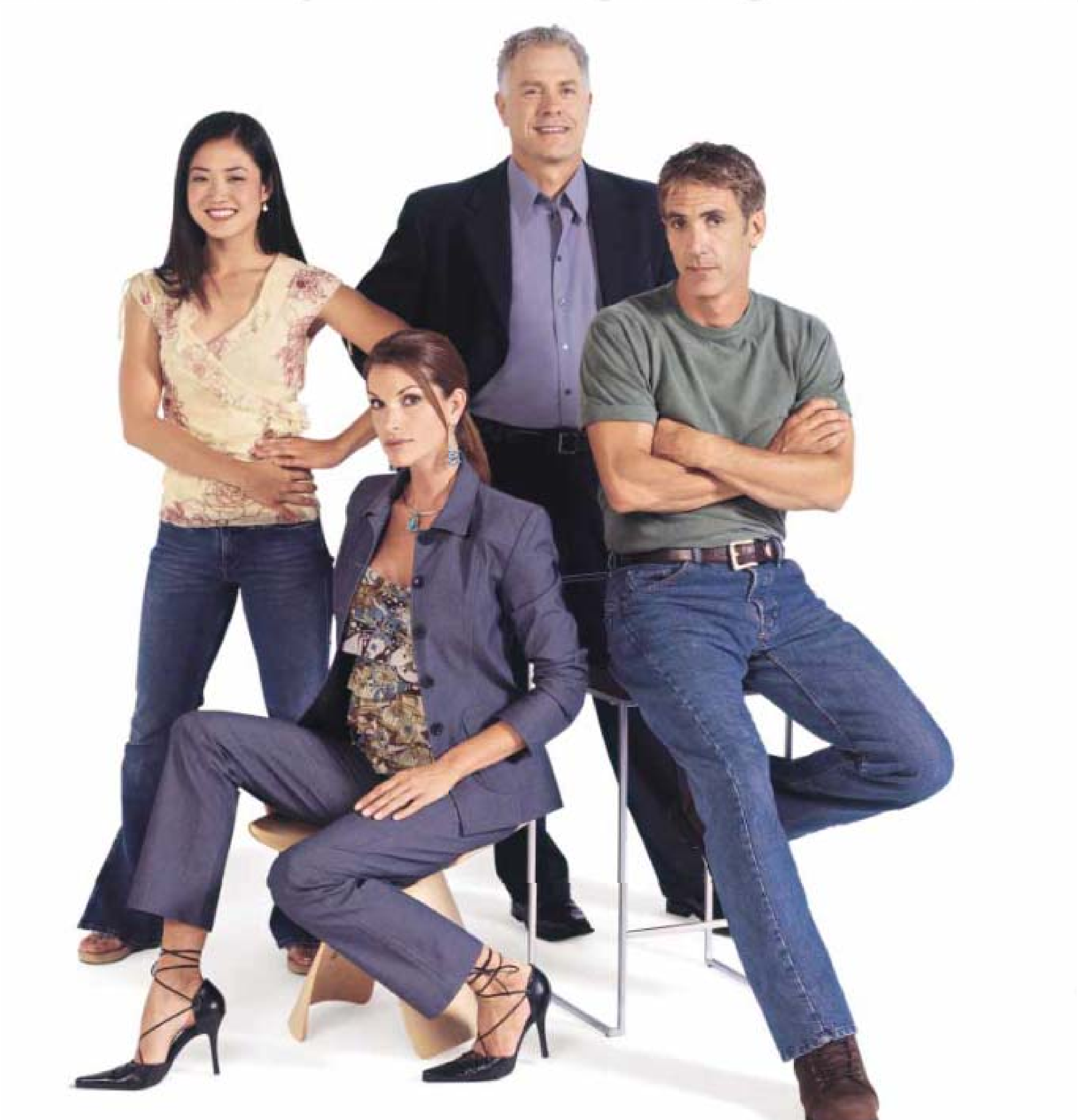

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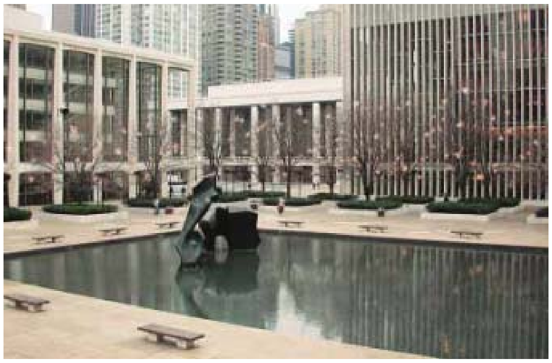
Preservationists worry about Lincoln Center renovation

While mostly praise has been directed toward Diller Scofidio + Renfro's plans to renovate Lincoln Center [RECORD, May 2004, page 28], resistance is forming among preservationists to one element: the restructuring of landscape architect Dan Kiley's Beaumont North Court, on the northwest end of the Lincoln Center campus.

Kiley, who passed away last year, designed the Modernist park with tightly spaced planters lined around a travertine groundscape and a simple, shallow reflecting pool featuring a sculpture by Henry Moore. The updated design, leaving room for a new restaurant, would essentially reshape the space. It would replace the tree line with a closely clipped formal bosk of trees and change the dimensions of the reflecting pool.



Some say reshaping Beaumont North Court is unnecessary.

Local designers and groups like Landmarks West! and Docomomo's U.S./Tristate chapter are putting pressure on Lincoln Center to reconsider this aspect of its plan.

"Lincoln Center could achieve most of its objectives without altering the integrity of the Kiley-designed landscape," wrote Ken Smith, a landscape architect, in a statement to the local community board. He tells RECORD that Kiley's plan "creates spatial containment and a balanced relationship between the open plazas, courts, and shaded bosk areas" of the complex, making it "the glue that held all those buildings together."

Along with most preservation groups, Smith is happy with most of Lincoln Center's scheme, which cost more than $300 million and includes renovation of several buildings and landscapes. But Smith claims that it would be possible to keep both the proposed new restaurant and Kiley's plans, and he even produced renderings with the two together.

While Lincoln Center is eligible for listing on the State and National Registers of Historic Places, it has not chosen to be designated, and thus faces no rules stipulating preservation. But groups urge greater scrutiny. Landmarks West! director Kate West says she has met with Lincoln Center several times about the issue. (Lincoln Center could not be reached for this story.)

"Once you disrupt that fabric, you really lose a chunk of what makes Lincoln Center Lincoln Center. Everything can be changed, but it has to be done more carefully in this case," says West. *S.L.*

Proposed bill would buoy nationwide preservation efforts

The most significant historic preservation incentives that our government has to offer—historic rehabilitation tax credits in the Internal Revenue Code—are themselves in need of preservation. The provisions now have very limited application, conflict with similar tax credits, and don't provide enough incentive to restore most historic properties, says Thomas Wolfe, The AIA's senior director of federal affairs. "These limitations weren't apparent when the tax credits were created in 1986," he notes. "They are now."

To help remedy the situation, Representatives Rob Portman (R-Ohio) and William Jefferson (D-Los Angeles), with the support of the AIA and the National Trust for Historic Preservation, on February 8 introduced the Community Restoration and Revitalization Act of 2005 (HR 659). Among other benefits, the new bill would provide greater incentives for private investment in older properties, broadening the current 10 percent tax credit to cover any building over 50 years old, including residential properties, which are not covered under existing law. Other benefits include restructuring the historic credit so that it can be used in tandem with the low income tax credit, creating affordable housing benefits, and encouraging smaller-scale development.

The bill would especially help lower-income communities, since more than half of the country's 12,500 historic districts overlap census tracts where the poverty rate exceeds 20 percent. ***S.L.***

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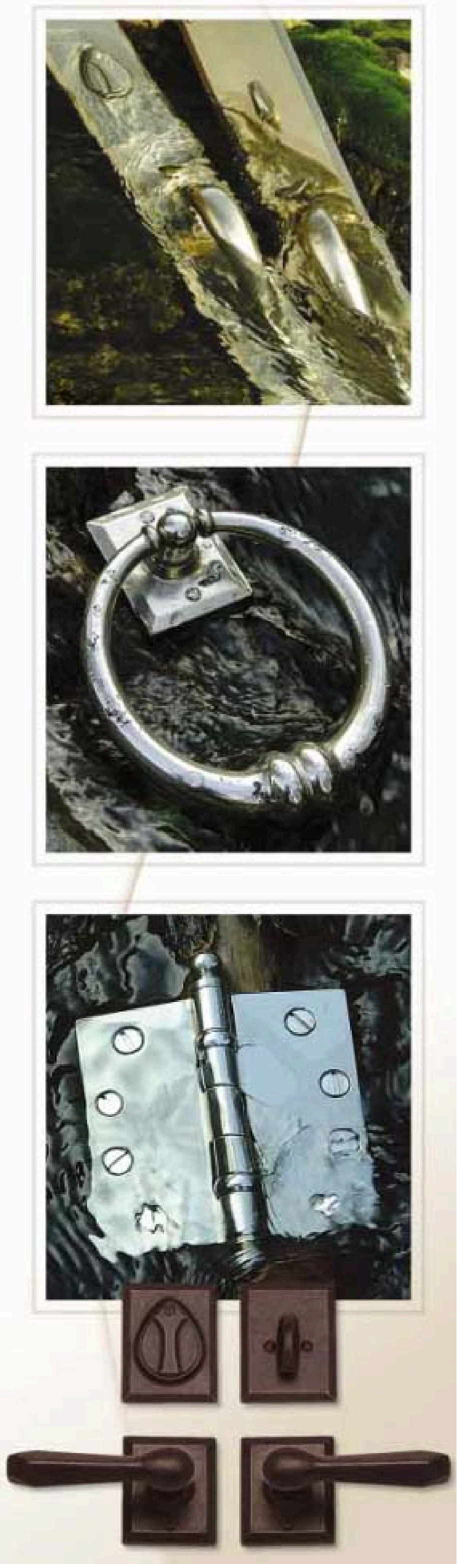

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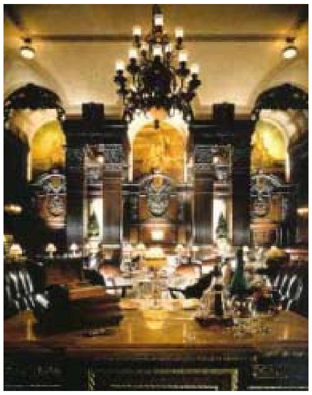
What does the future hold for the Plaza Hotel?

New York City's world-renowned Plaza Hotel is due to close for the first time in April. Its new owner, Elad Properties, is planning to build a luxury department store inside and convert most of the hotel rooms to luxury condominiums. The impending renovation has raised concern over the Plaza's historic interior spaces.

While the hotel's exterior is landmarked, the interior public spaces are not. Preservationists are most worried about the Oak Room restaurant, a German Renaissance–style space built in 1907 that still retains its ornately carved wood walls, elaborate chandeliers, and pastoral murals; and the Beaux-Arts hotel's ballroom, built in 1921, which is one of four such spaces remaining in the city.



The Oak Room restaurant.

New York–based Gal Nauer Architects and Costas Kondylis and Partners are finalizing renovation plans. No structural changes will be made to the historic interiors, says Elad spokesperson Steve Solomon. But he notes that the hotel needs fixing up. "A lot of stuff, even the woodwork, is worn out," he says, adding, "Where enhancement is needed, they are going to do it."

The city's Landmarks Preservation Commission has not decided if the Oak Room and ballroom merit landmark status. But its chairman, Robert Tierney, says that the spaces are noteworthy, and maintains that because the commission regulates the Plaza's exterior, it could likely influence the owner to preserve the two rooms. "Preserving those spaces will enhance their bottom line, and serious alterations would be a public relations disaster," adds Peg Breen, president of the New York City Landmarks Conservancy. But others say that the two rooms are in jeopardy because they remain unprotected by landmark laws. "Who knows what is going to happen two years from now?" says Anthony Dolkart, professor of architectural history at Columbia University. *Alex Ulam*

Renovation for "miracle building" near Ground Zero

In the summer of 2001, just before the attacks on the World Trade Center, the renovation of 90 West Street, a Cass Gilbert–designed office building just across the street, was nearing completion. On September 11, large pieces of the Twin Towers pierced the building's north facade, and fires gutted five floors and damaged four others. While the structure was dubbed "the miracle building" for still standing after 9/11, much was destroyed, two workers were killed, and airplane parts were scattered in the scaffolding and on the copper mansard roof. The building's future was uncertain.

Ground Zero seen behind 90 West.

Completed in 1907, 90 West was a precursor to Gilbert's nearby Woolworth Building, finished six years later. Dormant for nearly two years, the building's renovation—this time much more significant—is again nearing completion. The estimated $70 million project, due to finish this spring, is being converted into a 410-unit apartment building, renovated by H. Thomas O'Hara Architect and DeSimone Consulting Engineers.

Although the north facade was punctured in six places on 9/11, construction scaffolding and the foot-thick exterior masonry may have shielded further damage. Most of the interior steel remained intact. The interior has been gutted, but the lobby's groin-vaulted ceiling and the building's walls of intricate cast iron, granite, and glazed terra-cotta are being restored. Replacing the granite, which covers the first three floors of the exterior, has been a logistical puzzle, notes Peter Levenson, an architect and principal with the Kibel Companies (undertaking the project with Brack Capital Real Estate and BD Hotels). While a few "bones" remain, much is being replaced with granite cut from a quarry near Englishman's Bay, Maine, and then detailed in Florence, Italy. Under the watch of the city's Landmarks Preservation Commission, most terra-cotta has been replaced, as has the copper on the mansard roof. *John E. Czarnecki, Assoc. AIA*

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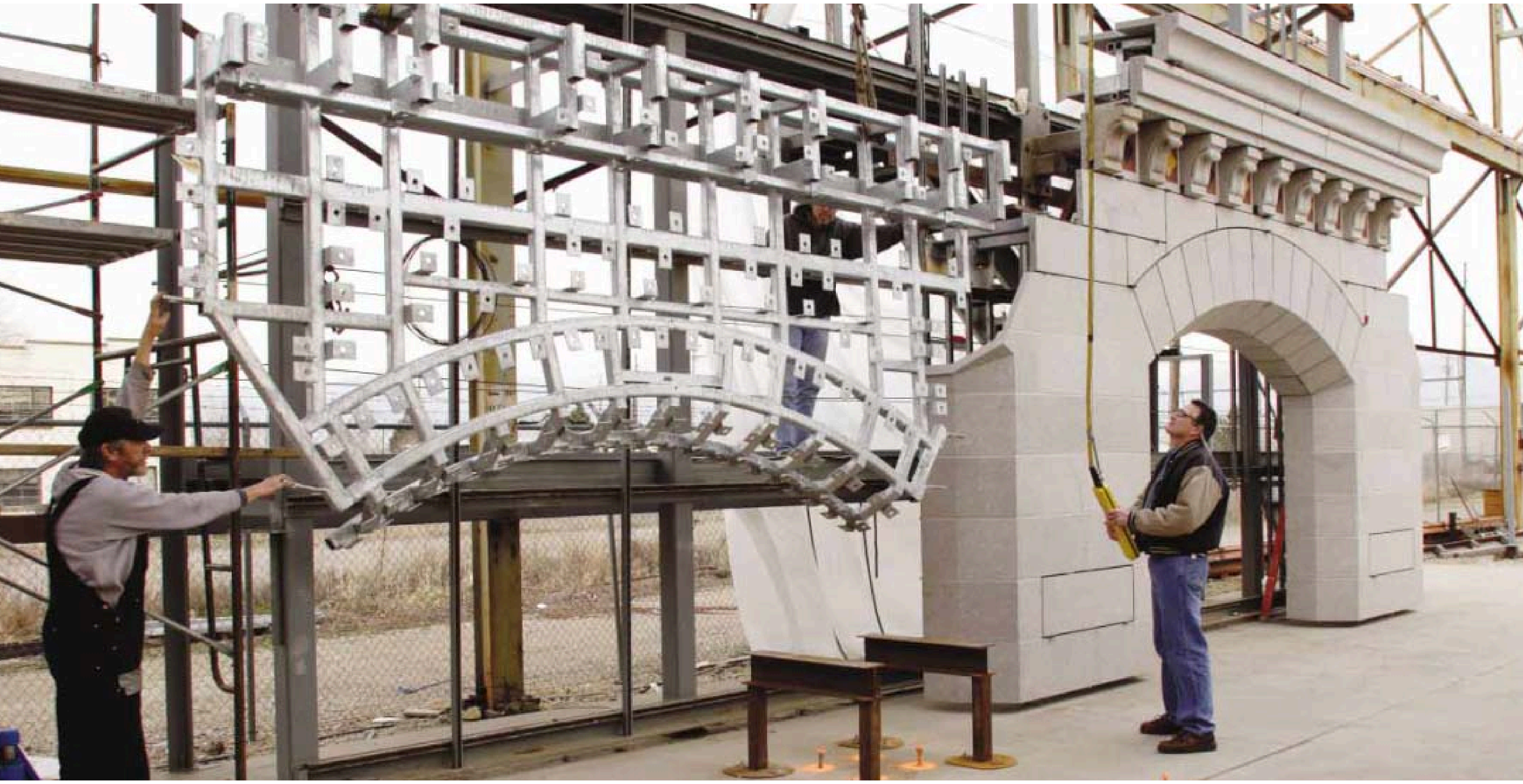

Classic Details

modern installation

As a result of the September 11th attack on the World Trade Center, the granite facade of New York City's 90 West building suffered severe damage. Originally constructed in 1908, this historic structure incorporates numerous detailed carvings reflective of the period's architectural style. Due to the project's congested "ground zero" location and the area's forthcoming intensive construction, equipment and scaffolding needed to be minimized as did the duration of the renovation. Already familiar with KEPCO+'s expertise in prefabrication and panelization of a variety of architectural cladding materials, the design and construction team contacted KEPCO+ in an effort to find solutions. Through the use of modern methods, the intricate facade of this century-old building will be restored to its original grandeur.

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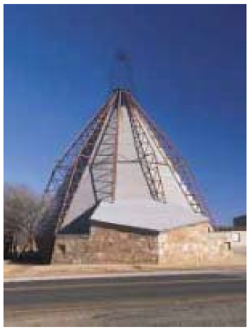
Preservation briefs

New life for Hopewell Church Bruce Goff's Hopewell Baptist Church, deemed "the most unusual church in America," will undergo a $2 million restoration, spearheaded by Oklahoma City–based Elliott + Associates Architects. The church, a 12-sided form reminiscent of the dwellings of the Plains Indians, was built mainly from found materials. The structure has been dormant since 1989, when maintenance costs and flooding forced its closure. Renovation will include repainting, restoration of windows and corrugated aluminum siding, replacement of interior finishes and lighting, and overhaul of mechanical systems.



Hopewell Baptist Church will be renovated.

Crown Hall undergoes restoration Chicago-based Krueck & Sexton Architects is undertaking a complete interior and exterior restoration of Ludwig Mies van der Rohe's Crown Hall at the Illinois Institute of Technology. The preservation architect is McClier. From May 20 until August 20, the team will remove all the glass, sandblast the steel down to white metal, and reinstall all new glass. Other changes will include installation of new light fixtures, electronically controlled blinds, and hydronic heating and cooling systems. The firm has already restored interior oak panels and revamped information technology systems. Built between 1950 and 1956, the building exemplifies Mies's simple, clear span designs: The roof is suspended from the underside of four steel-plate girders, which are carried by eight exterior steel columns. *S.L.*

Crown Hall's roof is suspended from girders carried by steel columns.

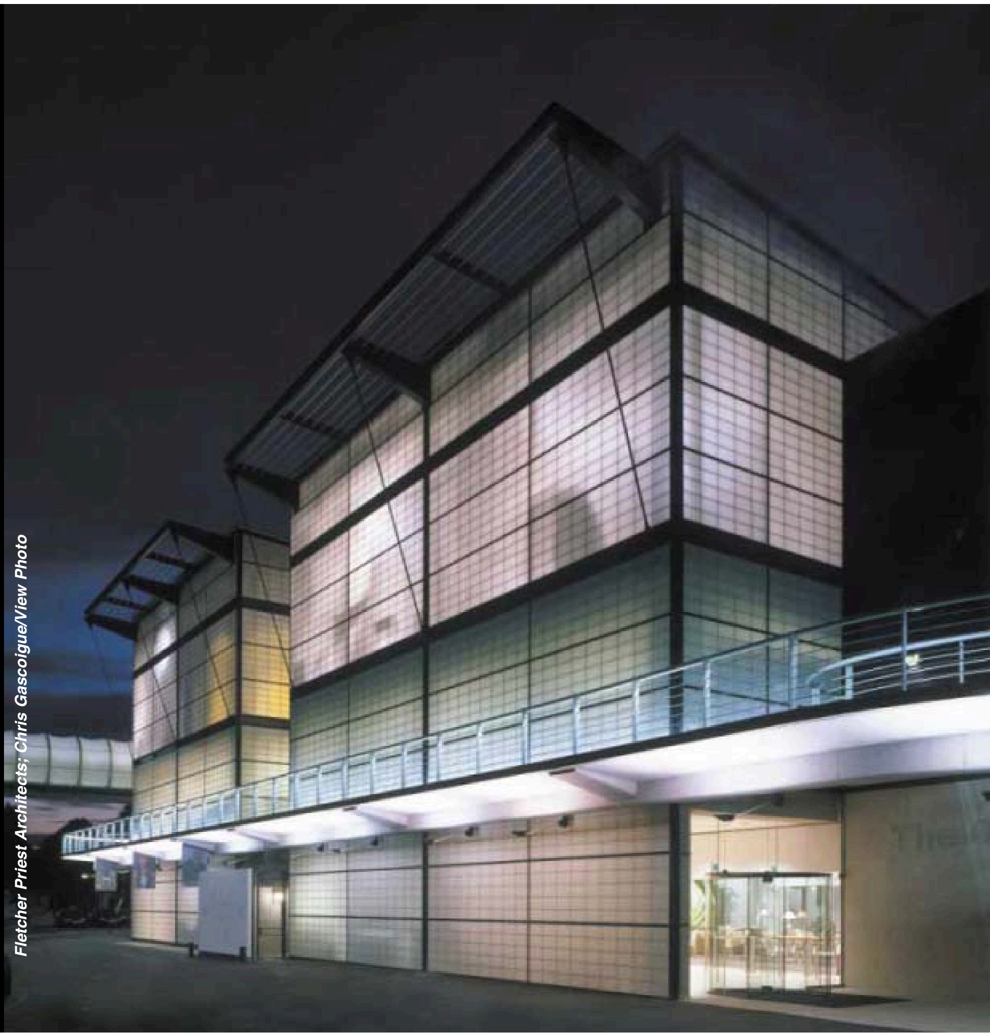
Docomomo redoubling efforts As more Modernist buildings and landscapes become eligible for preservation, DOCOMOMO, the international working party for documentation and conservation of buildings, sites, and neighborhoods of the Modern movement, is gearing up to become a more active advocate.

DOCOMOMO International and DOCOMOMO U.S. plan soon to post Web-searchable databases of their registries, partially automate the nomination and review of Modernist structures, and cast a wider net in educating the public. The group will also issue its first endangered buildings list in the second half of this year.

Key to the effort is coordinating international, national, and regional/local groups, according to Theodore Prudon, president of DOCOMOMO U.S.: "As a national and international organization, we have to balance the needs of regional and local communities with our overarching goals." It is also starting to define standard criteria for judging a work's reservation-worthiness, according to the DOCOMOMO U.S. newsletter. The organization, which was founded in the Netherlands in 1988, has branches in more than 40 countries. *Ted Smalley Bowen*

For more preservation news, go to **www.architecturalrecord.com**

PHOTOGRAPHY: © JOSEPH MILLS (LEFT); HEDRICH BLESSING (TOP)



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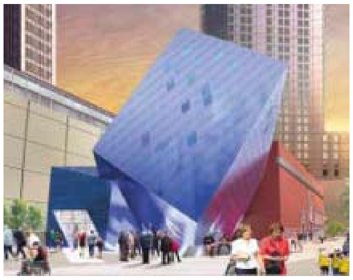

Libeskind's newest iteration.

Libeskind issues redesign of San Francisco museum

Perhaps the third time will be the charm for the Contemporary Jewish Museum in San Francisco. The museum has unveiled scheme number three for a site that uses the preserved brick facade of an early-20th-century power substation as its main entry. Located in the city's cultural district, the site borders cultural institutions designed by famous names like Botta, Maki, Polshek, and Legoretta. Peter Eisenman, FAIA's 1997 design raised ire over its public plaza. In 2000, the museum unveiled a fresh attempt by Daniel Libeskind in a joint venture with Chong Partners of San Francisco. While welcomed by the public, construction on the 100,000-square-foot version was delayed due to a reorganization of the institution. The third incarnation, by the same team, is scaled back. But at 60,000 square feet, it still features interior complexity and the smooth shining body of the galleries rising up behind the historic facade. Construction on the $41 million project is slated to begin in spring of 2006, barring new problems. *Lisa Findley*

School design is topic A The AIA's Committee on Architecture for Education (CAE) met in Washington, D.C., this February to discuss the problems facing today's school designers. Speakers, including GSA Commissioner Robert Peck; former GSA chief architect Ed Feiner, FAIA; Hugh Hardy, FAIA; and Ron Bogle, president of the American Architectural Foundation, urged architects to convince risk-averse public officials that good architecture reflects well on them and can reduce costs. Such design, they agreed, needs outside champions and relies on the private sector to help select and evaluate designs. *Andrea Oppenheimer Dean*

Boozy brings planning Off Broadway

One of the most original current new plays in New York City features an unusual cast of characters, including Le Corbusier, Robert Moses, Jane Jacobs, Franklin D. Roosevelt, Daniel Libeskind, and others, talking about issues like single-use zoning and emergence theory. *Boozy: The Life, Death, and Subsequent Vilification of Le Corbusier and, More Importantly, Robert Moses*, tracks the life of Moses from a naive youth, inspired by the utopian (but, according to the play, sinister) designs of Corbusier, to a ruthless public figure, building public works while knocking down much of New York in the process. Directed by Alex Timbers, the show is scheduled to run through March 5 at the Ohio Theater in SoHo. *S.L.*

LES FRERES CORBUSIER
BOOZY
OPENING FEBRUARY 13 FOR A LIMITED RUN

Jacob Grigolia-Rosenbaum plays Robert Moses.

ENDNOTES

Guggenheim Museum chairman Peter B. Lewis resigned in mid-January. A *New York Times* report cited differences over branch expansion between Lewis and director Peter Krens. Maya Lin, James Stewart Polshek, FAIA, and Laurie Olin have been named members of the American Academy of Arts and Letters. The International Union of Architects (UIA) will hold its annual World Congress in Istanbul this July.

IMAGES: COURTESY THE CONTEMPORARY JEWISH MUSEUM (LEFT); LES FRERES CORBUSIER (RIGHT)

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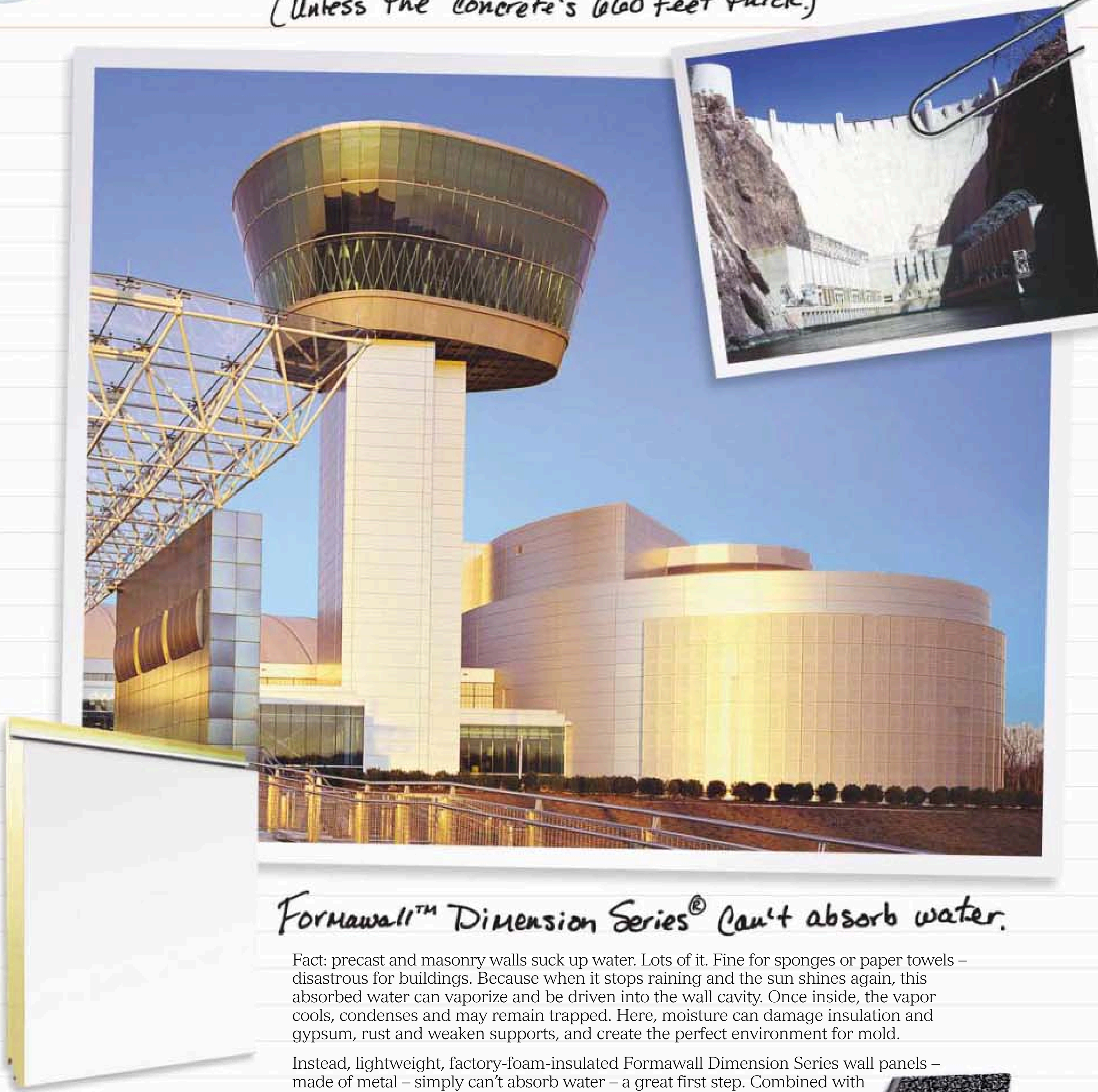

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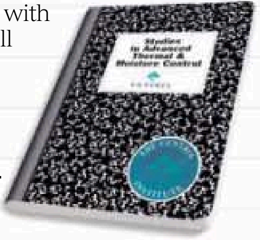

Learn more about avoiding moisture problems in exterior walls with the CENTRIA Institute's *Studies In Advanced Thermal & Moisture Control*. The handbook is free for architects, contractors and building owners with a phone call to CENTRIA today.

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Brownfield of dreams.

"Buildings should feel local," says David Greusel, a principal with HOK Venue in Kansas City. He's the design architect of PNC Park in Pittsburgh and Minute Maid Park in Houston, two of major league baseball's most celebrated new venues.

GRAND RIVER CENTER

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PNC PA
PLATE

Greusel's directive was recently brought to life in Dubuque, Iowa, where he helped transform an abandoned brownfield site along a Mississippi flood plain into Grand River Center, one of the country's most spectacular waterside meeting and convention venues.

Created from native Iowa limestone and a shimmering cascade of high-performance solar control glass, Grand River Center aligns Greusel's desire to work with indigenous building materials with his natural instinct to create dwellings that harmonize with the environment.

"From the reclamation of the site to the selection of building materials, there was a determined effort to make this building as green as possible," he says. "But we also wanted to make it a spectacular place to be."

Unconventional Center

To achieve these dual objectives, Greusel took a pair of proven PPG products and employed a novel twist. Alternating bands of *Solarban*® 60 and *Solarban*® 80 glass, the architect fashioned a towering vision wall that bathes the interior of the sprawling complex in natural light while visually anchoring the structure to its historic industrial landscape.

According to Greusel, the selection of Solarban Solar Control low-E glass was critical. The glass satisfies his compulsion to practice environmentally sustainable architecture. Yet, the building's openness and transparency also allow residents of the surrounding community to establish an intimate connection with their newest architectural landmark.*

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Dates & Events

New and Upcoming Exhibitions

Blobjects & Beyond:
The New Fluidity in Design
San Jose, Calif.
March 5–July 10, 2005
Inspired by the idea that blobjects (blobby objects) have become defining products of the new millennium, this exhibition showcases the talents of some of today's hottest designers. A rich range of product, furniture, graphic, media, and architectural work from across the globe will be featured. At the San Jose Museum of Art. Call 408/294-2787 or visit www.sanjosemuseumofart.org.

Ornament
Chicago
March 5–26, 2005
An exhibition of architects working with new materials and fabrication processes that push the boundaries of conventional wisdom. The show aims to examine and reveal the contemporary understanding of ornament in present architectural design, allowing for a new perspective on historical precedent. At M5 Exhibition Space. Visit www.mfive.org for further information.

Carlos Garaicoa
Los Angeles
March 6–June 12, 2005
The first U.S. museum survey of recent work by Cuban artist Carlos Garaicoa, who addresses Cuba's politics and ideologies through the examination of Modern architecture. At the Museum of Contemporary Art (MOCA) Pacific Design Center. For additional information, call 213/626-6222 or visit www.moca.org.

The Design Workshop: Five Years of Design Build at Parson's
New York City
March 9–18, 2005
This exhibition will reflect on the past five years of design-build projects developed through an innovative studio program that gives Parson's graduate architecture students the rare opportunity to realize a design project in built form while providing pro bono architectural and construction services to nonprofit organizations in New York City. At Parson's School of Design Gallery. Visit www.parsons.edu.

Filigree Spaces:
Textile Installations by Piper Shepard
Baltimore
March 23–September 18, 2005
The two new installations, featuring a dramatic curtain wall in the Baltimore Museum of Art's lobby and a "room within a room" design in the BMA's textile gallery, explore the connection between textiles and architecture. At the Baltimore Museum of Art. Call 410/396-7100 or visit www.artbma.org.

Ongoing Exhibitions

Architectures du Monde
Toulouse, France
Through March 5, 2005
The exhibition *Architecture of the World* presents more than a hundred architectural photographs taken by the historian, critic, painter, and photographer William J.R. Curtis. Drawing on images collected during his numerous travels over the past 30 years, the exhibition provides an architectural journey through space and time, juxtaposing examples from east and west, north and south, and from modern and ancient civilizations. At the Centre Meridional de l'Architecture et de la Ville. Call 33 0 561/233049.

Tele-Design: Tokyo Catalyst
London
Through March 17, 2005
Tele-Design is a network of independent Japanese designers who collaborate by remote means—telephone, TV, fax, and Internet. Whether they are working on small-scale furniture or on the large scale of the city or landscape, their concern is to make spatial design responsive to our digital society. This exhibition presents their concept of urbanism, which draws a parallel between urban transformations and chemical reactions. At the Architectural Association School of Architecture Front Members Room. Call 44 0 20/7887-4000 or visit www.aaschool.ac.uk.

Klein Dytham Architecture:
At the Bathhouse
London
Through March 18, 2005
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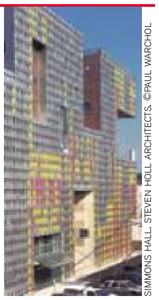

SIMMONS HALL, STEVEN HOLL ARCHITECTS. ©PAUL WARCHOL

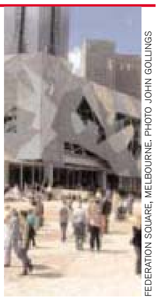
March 9
Steven Holl
Steven Holl Architects, New York

March 14
Shanghai: Architecture and Urbanism for Modern China
Peter Rowe, professor of architecture and urban design, Harvard University

March 22
Portraits of Architects: Behind the Images
Richard Schulman, architectural photographer

March 28
Building the Freedom Tower with New Software Technology
Carl Galioto, FAIA, partner-in-charge of Skidmore, Owings & Merrill Technical Group

exhibitions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from east and west, KDA aims to fuse different cultures effortlessly. Materials, color, technology, and humor are key elements in their work. At the AA Gallery. Call 44 0 20/7887-4000 or visit www.aaschool.ac.uk.

Janos Enyedi—Made in America: The American Industrial Landscape—Reconstructed
Washington, D.C.
Through April 8, 2005
Enyedi's latest series of sculptural assemblages and digital prints is based on actual industrial sites. His work has an urgency because much of America's industrial landscape is being dismantled due to the shift of manufacturing jobs to other countries where labor and materials are cheaper. The 25 works in this exhibition celebrate the overlooked beauty of industrial architecture's details. At the Octagon. Call 202/638-3221 or visit www.theoctagon.org.

Changing Streetscapes: New Architecture and Open Space in Harlem
New York City
Through April 30, 2005
Through arial and street-level photography, architects' renderings, brochures, and other visual documents, this show examines changes in five main areas: commercial, housing, cultural, institutional, and landscape projects. In the Cohen Library Atrium at City College of New York. Call 212/650-7118 or visit www.ccny.cuny.edu.

Export
Berlin
Through May 1, 2005
Presenting foreign work by German architects, this exhibition portrays the scope of German architecture firms, reviewing various projects from competition to planning to built work. Overall, the image of German architecture is explored in depth, and the meaning of "made in Germany" is addressed. At DAZ (Deutsches Architektur Zentrum). Visit www.daz.de.

Jean Prouvé: Tropical House
New Haven
Through May 6, 2005
A prefabricated metal house constructed by French designer Jean Prouvé, and recently transported from its home in the Congo Republic, will be the subject of a two-part exhibition at the Yale School of Architecture. For information, call 203/432-2288 or visit ww.architecture.yale.edu.

Design Innovations in Manufactured Housing
Chicago
Through January 15, 2006
Commissioned for this exhibition, the featured designs present creative solutions to fill the demand for affordable, high-quality housing. Eight nationally recognized architects and industrial designers—David Baker, Bryan Bell, Carol Brown, Teddy Cruz, Yolande Daniels, Doug Garofalo, David Khoury, and Ali Tayar—have contributed original models and drawings that consider innovation in the design, materials, and manufacturing techniques of low-cost, factory-built housing. At the Field Museum. Call 312/922-9410 or visit www.fieldmuseum.org.

Lectures, Conferences, and Symposia

AIA SF/SFMOMA Architecture Lecture Series: Hani Rashid
San Francisco
March 3, 2005
A leading figure in the fields of architectural design and digital interactive environments, Rashid's works marry architecture, art, and technology, often playing with the fusion between real and virtual space. In SFMOMA's Phyllis Wattis Theater. Call 415/362-7397 or 415/357-4027.

City College of New York's School of Architecture, Urban Design, and Landscape Lecture Series
New York City
March 3, 10, 17, 2005
The 2005 Lecture Series, entitled "Architecture: Different Points of View," features eminent architects whose work reflects innovation and excellence. Speakers include: Rodolfo Machado, Machado & Silvetti Associates and Harvard University; Gaetano Pesce, School of Architecture, Strasbourg, France; Tom Beeby, Hammond Beeby Rupert Ainge and Yale University School of Architecture. In City College's Shepard Hall. Call 212/650-7118 or visit www.ccny.cuny.edu.

Lars Spuybroek: Machining Architecture
London
March 7, 2005
A lecture by the principal of the Rotterdam-based practice NOX, which has recently completed an interactive tower for the Dutch city of Doetinchem (D-Tower), "a house where sounds

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live" (Son-O-House), and a complex of cultural buildings in Lille, France (Maisons Folies). Lars Spuybroek has been involved in researching the relationship between architecture and media. In the Lecture Hall at the Architectural Association School of Architecture. For information, call 44 0 20/7887-4000 or visit www.aaschool.ac.uk.

Spotlight on Design Lecture: Steven Holl
Washington, D.C.
March 9, 2005
The buildings of architect Steven Holl reflect his fascination with scientific phenomena and the interplay of light and space to create compelling visual experiences. Principal of New York–based Steven Holl Architects, he will discuss the firm's work, including the Loisium Visitor's Center in Langenlois, Austria; Simmons Hall at MIT; and the addition to the Nelson Atkins Museum of Art in Kansas City, Missouri. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Lecture: Shanghai's Architecture and Urbanism for Modern China
Washington, D.C.
March 14, 2005
Peter Rowe, professor of architecture and urban design at Harvard University, will review Shanghai's urban plans since the beginning of the People's Republic in 1949 and discuss major contemporary projects, including infrastructure, commercial buildings, historic conservation, and construction of new and satellite communities. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

James Carpenter: Constructing the Ephemeral
New York City
March 14, 2005
James Carpenter, the innovative glass sculptor, engineer, and designer, will discuss the artistic and technical potential of glass. At Glass Corner. Visit www.parsons.edu.

Lewis Mumford: Planet of Slums
New York City
March 16, 2005
The second annual Lewis Mumford Lecture on Urbanism will focus on the disconnection from industrialization and economic growth of the more than one billion people living in slums. Author Mike Davis will argue that the rise of this informal urban proletariat is a wholly original development unforeseen by classical urban theory or political economy. At the Great Hall at City College. Call 212/650-7118.

Architect's Forum: Riken Yamamoto
New York City
March 16, 2005
Known for his attention to the role and function of buildings within the life of a city, Yamamoto eschews the neat compartmentalization of private and public spaces, striving to re-integrate these spheres into an environment that is organic, adaptive, and interconnected. An acclaimed example of this is his Jianwai SOHO project, a nine-building development housing retail units, apartments, and office space in Beijing. At the Japan Society. Call 212/832-1155 or visit www.japansociety.org.

San Gemini Preservation Studies
San Gemini, Italy
May 20–August 7, 2005
Registration deadline: March 30, 2005
This summer program is held in San Gemini, Italy, and sponsored by the University of Wisconsin–Milwaukee. Offering courses in restoration, management, and the study of cultural heritage, the program includes classroom work, travel, and hands-on experience on field projects. Past field projects have included the sur-

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Luke Wong, Executive Masters graduate, 2001

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vey and restoration of the 12th-century Church of San Giovanni Battista, the archaeological survey and conservation of the Roman public baths in the ancient city of Carsulae, and the survey of the 12th-to-18th-century Church of Santo Gemine. Call 414/229-5182 or visit www.sangeministudies.info.

Competitions

Shrinkage Award 2005

Deadline: March 21, 2005

An international competition open to anyone with design ideas inspired by shrinkage lifestyle. Individuals, groups, and multidisciplinary teams are welcome to submit experimental proposals about shrinkage as applied to the current traditional ideas of architecture and planning in correlation with land loss. For further information call 41 76/406-7088 or visit www.shahneshin.net.

Central Massachusetts Design Award

Deadline: March 31, 2005

Any built project of any type anywhere in the world by any Central Massachusetts architect is eligible, and any architect anywhere in the world may submit any project built in Central Massachusetts. Visit www.architects.org/awards.

Organic Style Award

Deadline: March 31, 2005

Organic Style magazine is launching its first-ever residential green architecture award. Winners will be awarded for both sustainably built new houses and renovations. Visit www.organicstyle.com.

American Architecture Awards

Deadline: April 1, 2005

The 2005 awards program considers for awards new corporate headquarters, skyscrapers, institutions, sports and transportation facilities, interiors, urban-planning projects, airports, and residences built in the U.S. or abroad by an U.S. architectural firm. For further information, call 815/777-4444 or visit www.chi-athenaeum.org.

Frontierspace Design Competition

Deadline: April 13, 2005

Frontierspace is an open international design competition for Vancouver organized by the Spaceagency, aiming to generate innovative design proposals to rethink an existing space in the city—the laneways in Gastown. Visit www.spaceagency.ca.

2005 Summer Faculty Fellowship

Deadline: May 4, 2005

Each year, the Boston-based design firm Goody Clancy offers a unique Professional Fellowship to an individual motivated to contribute to and gain experience from the firm. In addition to a $15,000 stipend, the selected Fellow will spend the summer at the Boston office and have access to the firm's resources. For further information, call 617/850-6556 or visit www.goodyclancy.com.

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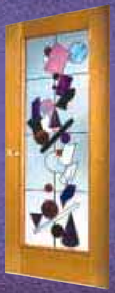


For and about
the emerging architect

archrecord2

This month, archrecord2 talks to architects who have delved into the art world. In Design, Seattle-based Lead Pencil Studio, while armed with an architecture portfolio, has produced an award-winning array of art exhibitions and installations. The architects in this month's Work article conjointly created a continually morphing artwork. As always, you can find more about these stories on our Web site.

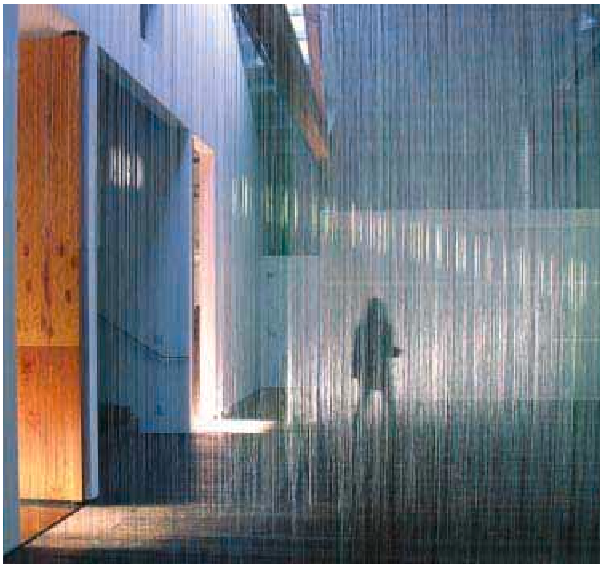
Design

Successfully artful integrations

During the months of February through April 2004, visitors to the art gallery Suyama Space in Seattle, Washington, were able to view the installation *Linear Plenum*. Exploring the spatial and architectural qualities of an industrial space, the exhibition featured 19,000 varied-length strands of thin nylon masonry line which filled almost the entire gallery interior while allowing people to easily pass through it. During the three-month show, the light that entered the space through the windows and skylights varied greatly and, repeat visitors discovered, dramatically altered the effect of the artwork. While this ephemeral work has ended, the labors of Lead Pencil Studio, its creators, have not.

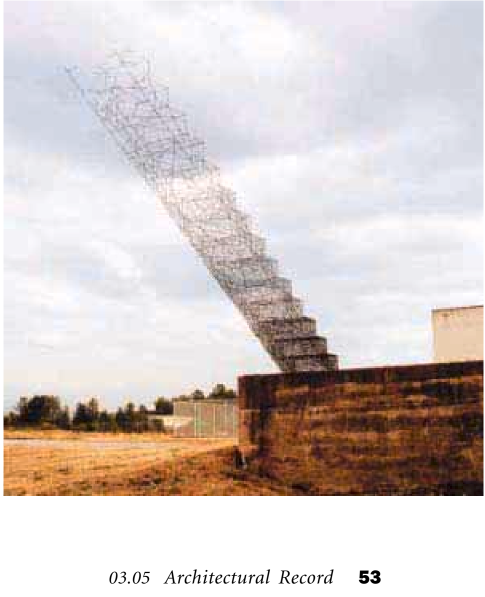
Architects Annie Han and Daniel Mihalyo, the founders of the firm, met while studying architecture at the University of Oregon and worked together at Seattle-based Miller/Hull. In 1997, the pair decided to form their own office and retained studio space so they could concurrently work on art projects. As a fledgling firm, they were fortunate to get local commercial work—which soon led to the design of offices in other parts of the country.

After five years, their architecture portfolio grew, as did the size of their art projects and installations. The need for more room led the couple to construct their own live-work space, the 4 Parts House. "We wanted to build a very simple space," says Mihalyo. "Essentially, we wanted an open area that just happened to have people living there." While the living, dining, and kitchen areas are contained in one volume, their studio is lofted above. Han adds, "The new studio allowed us to move from tabletop-size projects to more space-conscious and architecturally related projects." The added studio space has become essential—Lead Pencil Studio was recently awarded with a Creative Capital grant in Visual Arts. Their proposed project, *Maryhill Double*, will be their largest installation to date. The increased space has not been the only advantage: The architects note that since its completion, the press that their residence has received has brought



***Linear Plenum*, Seattle, Washington, 2004**
The architects explain that this project produced a space that "remained empty but was full at the same time." As a participant passes through the nylon masonry lines, the strands continue to hang straight.

Seattle Staircase, Seattle, Washington, 2003
For this outdoor installation at the Sand Point Arts and Cultural Exchange, the architects grafted one half of the partial stairwell to a defunct firehouse and the other half to a retaining wall.



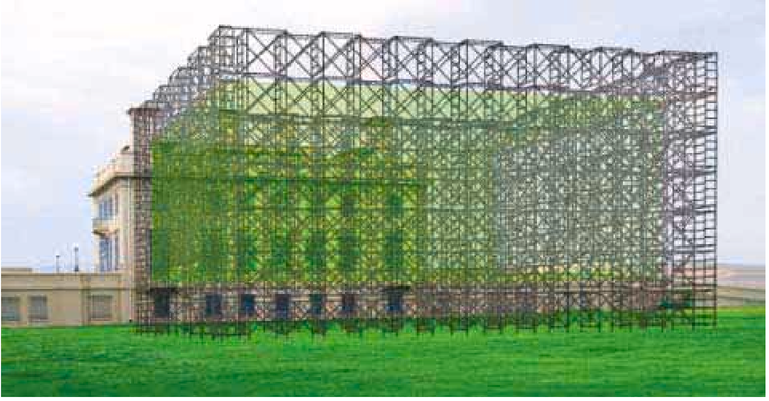
IMAGES: COURTESY LEAD PENCIL STUDIO (THIS PAGE AND OPPOSITE, TOP THREE)

them more work, including the remodeling of a residential kitchen, as well as new residences in the Seattle area and one in Olympia, Washington.

Often asked where their path will ultimately lead them—toward architecture or art—the duo is emphatic that these fields need not be mutually exclusive. “We’re often told, ‘you can’t do both,’ but architecture and art are completely inseparable to us,” states Han. “It’s not even a conscious decision for us, it’s part of our routine.” In fact, part of this routine places the determined couple on photographic journeys around the Northwest and beyond. Mihalyo describes these ventures as “opportunities for research and a continual process of looking and observing.” When starting a new project, the visually oriented Han and Mihalyo often find themselves going through their archives of imagery. The architects have even parlayed some of their photography into themed books: One, *Wood Burner*, was published in 1997, and another, *Foundations*, is to be released later this year. ***Randi Greenberg***

For further information on Lead Pencil Studio’s projects and installations, go to archrecord.construction.com/archrecord2/

***Maryhill Double*, Maryhill, Washington, 2005**
Using construction scaffolding and flexible netting, the architects propose to create an exact duplicate volume of the museum to which the structure would be attached.



4 Parts House, Seattle, Washington, 2001
Consisting of “four parts”—sleeping, studio, living, and portal areas—the architects’ own 1,350-square-foot live/work residence is constructed primarily of steel, concrete, and glass.

Work

An architecture about-face

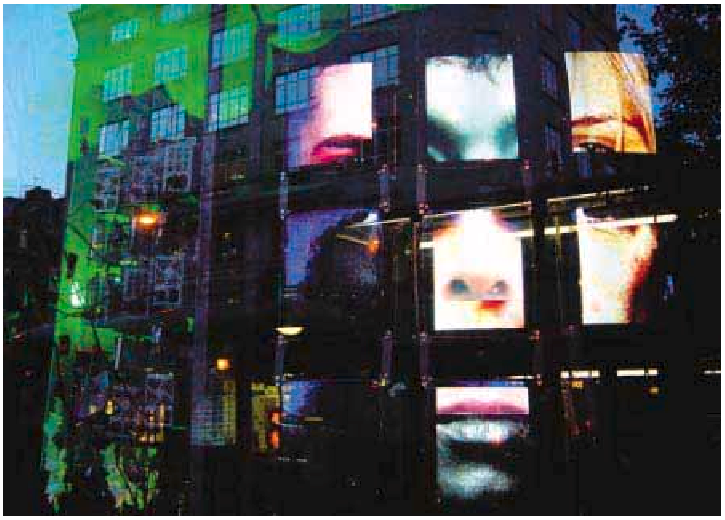
In June 2004, Selfridges, the London-based department store, was being heralded for its glimmering new Oxford Street facade. As it so happens, during that month, Selfridges was also exhibiting an amalgamation of other faces. *Face Breeder*, conceived by architects Theodore Spyropoulos and Vasili Stroumpakos, is a hybrid portrait machine constructed from personal-computer hard drives and monitors. Invited architecture entrants of the London Architecture Biennale, entitled *Postcards of London*, were asked to respond with new visions of the city. Spyropoulos explains, “*Face Breeder* was our reaction to contemporary disposable culture. It questions one’s own personal identity in an electronic age.”

Both architects are currently research fellows at the Architectural Association in London. Stroumpakos, developer of 00110.org—a Web site featuring his works and studies, and Spyropoulos, cofounder of the experimental design practice Minimaforms, have collaborated on a series of projects. The pair conducts studies in the field of responsive environments and, as Spyropoulos explains, “We’re looking for communication strategies for architecture.”

Face Breeder is composed of nine obsolete personal computers and a 3 x 3 grid of computer monitors. Single photographs are input into the system that then creates an archived database of faces. Using software that the architects developed themselves, a digital breeding of hybrid portraits is created. Stroumpakos states, “All the devices we use are recycled and are appropriated into a new arrangement.”

An upgraded version of *Face Breeder* is currently being developed for an exhibition at the Architectural Association that will open at the end of April and run through May 2005. New developments in this project will include a “face-capturing device.” While currently portraits are accepted and added to their database through their Web site (www.facebreeder.com), Stroumpakos explains, “Visitors to the next exhibition can have their picture taken and the image will be archived in our databank.” ***Randi Greenberg***

For more examples of hybrid images from the *Face Breeder* installation, go to archrecord.construction.com/archrecord2/



Some *Face Breeder* images seen during the London Architecture Biennale.

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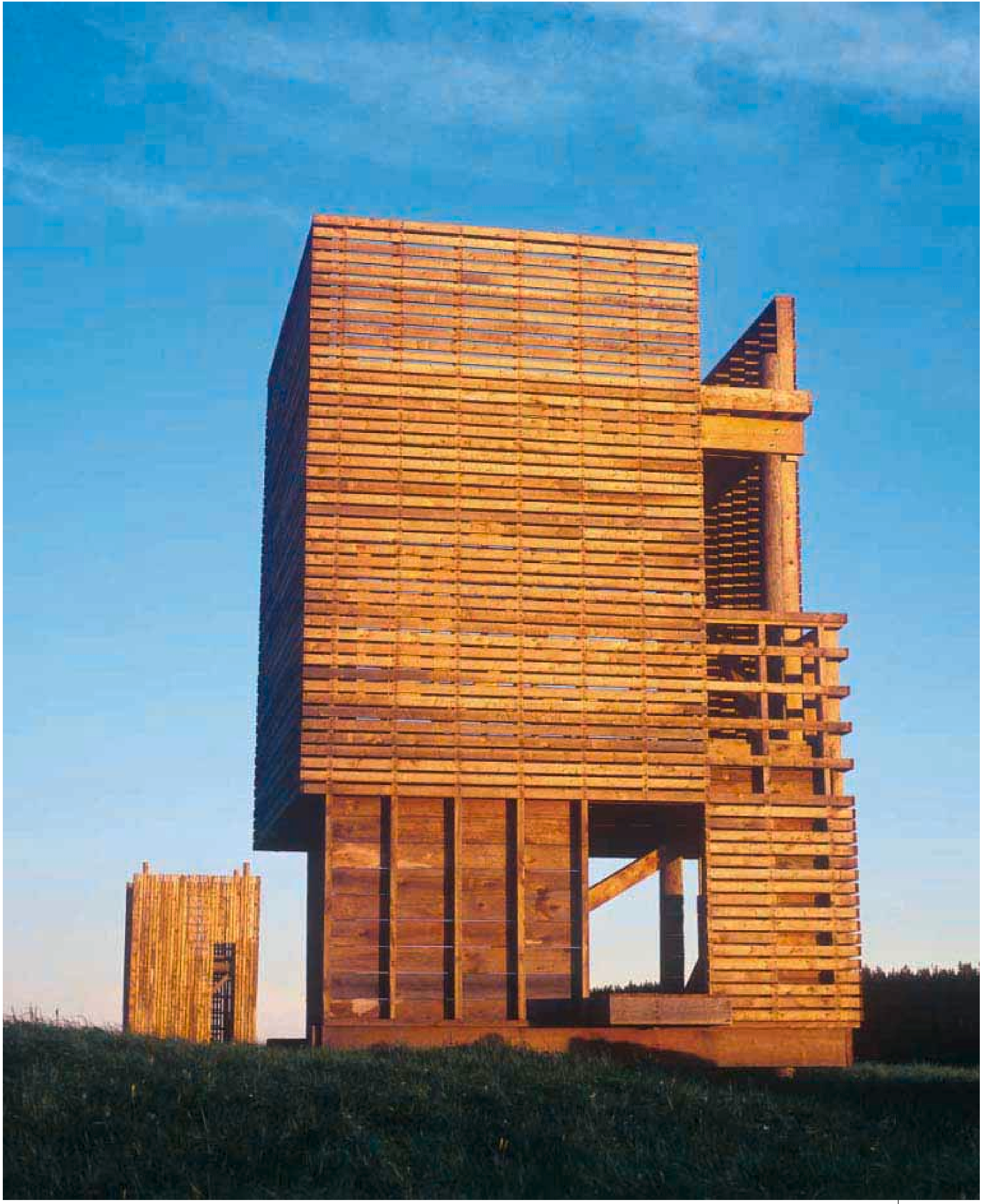


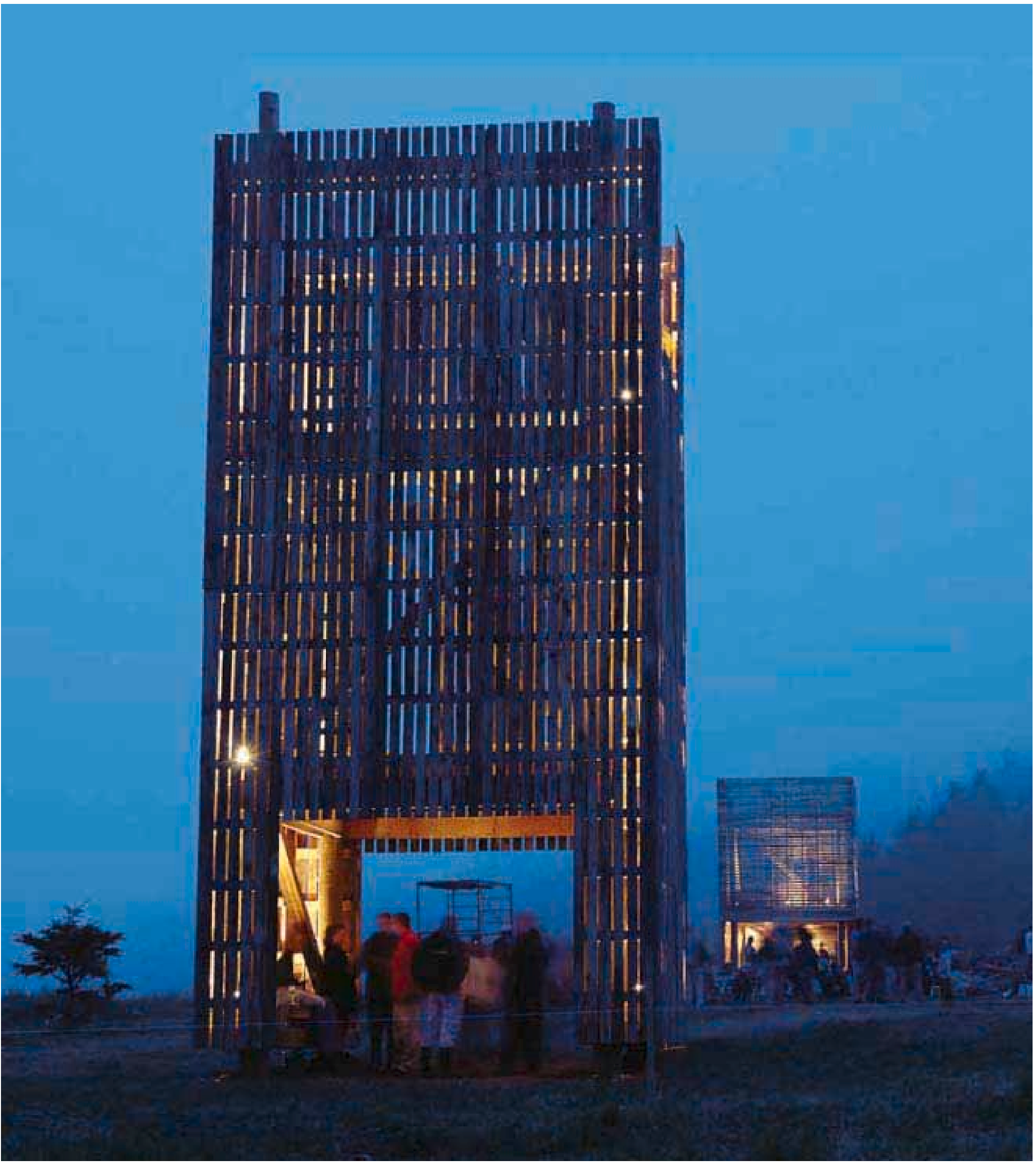
By Beth Broome

A haunting Nova Scotia site plays host to Ghosts

Anchored at the end of a peninsula on Nova Scotia's south shore, two looming wood towers dot the windswept landscape. Known as Ghost 6, the structures are the result of last year's design-build internship led by Halifax architect Brian MacKay-Lyons. Each summer since 1994, MacKay-Lyons has assembled a group of about 20 students, practicing architects, artists, and professors on his farm to spend two weeks designing and constructing a new project.

MacKay-Lyons started the program in reaction to the disconnect he observed between the academy and practice of architecture. Process smarts, he believes, is a powerful design tool. Resurrecting the master-builder approach, he hoped to reaffirm architecture as a collaborative discipline and provide an educational experience with a focus on the use of landscape, the issues of material culture, and the concept of community.

PHOTOGRAPHY: © JAMES STEEVES



Architect Brian MacKay-Lyons hopes that participating in a Ghost project will help design-build lab interns appreciate the joy in making things and the community relevance of the built world.

Known as Mosher's Settlement, the site was first an aboriginal village, later served as the first landfall for Samuel de Champlain in the New World, and has a long record as a farmstead and fishing port. MacKay-Lyons, whose own family history extends back nearly 400 years along this same shore, was naturally attracted to the location. "It's only the ghost of a village that remains," he says of the property. Each year the program mines the area for clues of its past. The resulting projects make evident the team's findings and, says the architect, much like surveying instruments, they provide an understanding of the site's scale. Ghost 6 tells the story of two brothers, Simeon and Wilson, who built twin homesteads here long ago. The project is about the rapport between these two families and their houses.

As a continuation of the centuries-old tradition of building and erasing on the site, the Ghosts are temporary—disassembled after a period, and the wood reused in future projects. For Ghost 6, also known as Simeon and Wilson after the brothers, telephone poles were sunk into the earth next to the homes' remaining foundations. Rough-sawn lumber structures, which pay homage to the local ship-building tradition, were hung off the supports. The taller of the two towers was constructed in the balloon-frame tradition, the other was made in the platform-frame manner, and both have wood slat exterior skins. With builder Gordon MacLean on hand, as well as Campbell Comeau Engineering, guest architect Wendell Burnett, and guest critic Tom Fisher, the interns built on the concept provided by MacKay-Lyons, improvising and modifying along the way.

Though the Ghost is an educational exercise, it does not happen in an academic vacuum. The program culminates with an oceanside fete, featuring bonfires and local musicians and performers, that attracts hundreds of revelers. "It's farmers and fishermen and people flying in on Lear jets," says MacKay-Lyons. "And the village idiot and the world's strongest man who lives in the next village comes. The cows are out there wandering around." Simeon and Wilson are also adorned for the occasion. Like each year's project, they are illuminated from within. "That midsummer night is always foggy," says MacKay-Lyons, "and you get this wonderful fiber-optic effect with the water in the air, so it really is like a ghost." ■

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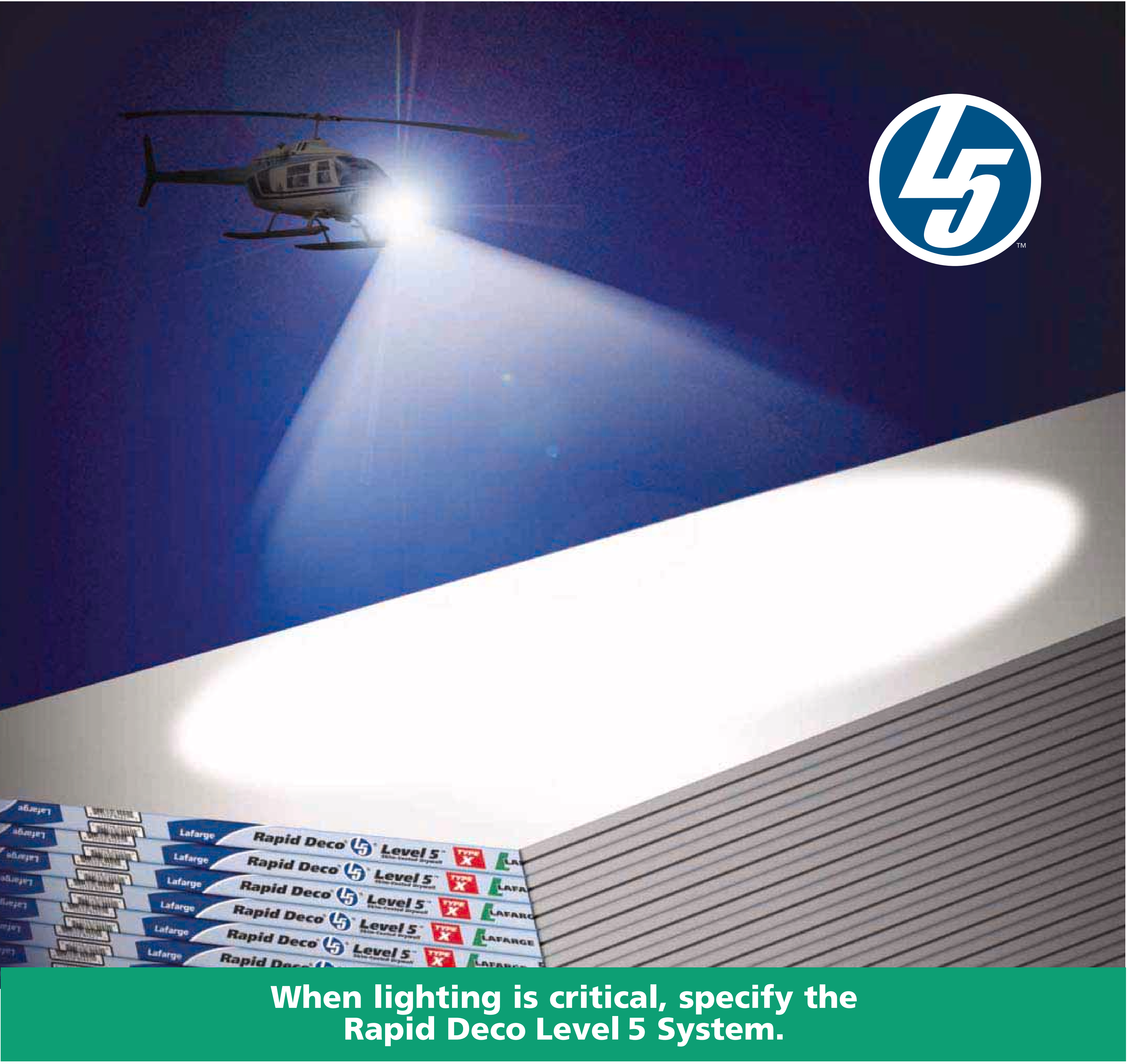

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By James S. Russell, AIA

Where Architecture is Urban Design

We've seen the remaking of Berlin, the reinvention of Manchester, the doing over of docklands in Holland, the restoration of the great monuments of Prague. Per capita public investment in nearly all of Europe is far higher than in America. Architecture, urban design, planning, infrastructure growth, and economic development are intertwined in Europe to a degree and to a sophistication all but unknown here. In no place has the trend gone as far as in two Spanish cities: Bilbao and Barcelona. It portends, arguably, a new way to make cities.

Bilbao: from gritty to gleaming

American officials, still smitten by the famous Bilbao Effect, too often fail to recognize that the transformation of this once-down-at-heels center of steel and shipbuilding counted (and still counts) on much more than the presence of Frank Gehry's eye-popping museum. A subway system by Norman Foster, an airport terminal by Santiago Calatrava, along with pedestrian bridges and other infrastructure improvements, were already completed by the time the Guggenheim opened. The Metro, locals say, has helped pull together a string of communities stretching along the river. Isolated by steep ridges, they had rapidly declined. A massive river cleanup went along with the gigantic job of moving the port out of the space-squeezed center to a vast new container facility on the Bay of Biscay.

"We've been lucky," says Carlos Gorostiza, a spokesman for Bilbao Ría 2000, a private redevelopment agency responsible for coordinating public redevelopment efforts. "The Guggenheim was a much bigger success than we anticipated." In its first two years, Guggenheim visitors added 433 million euros (about $570 million) to the local economy, paying back the project's 132-million-euro ($172 million) investment more than threefold, according to an analysis by KPMG Peat Marwick. As important, it changed the city's picture of itself, from high-unemployment hopelessness to a "faith in the future," according to Ibon Areso Mendiguren, a deputy mayor in charge of planning for the city of Bilbao. The stiff resistance that had greeted the idea of a splashy branch of the Guggenheim melted. With broad public support, the pace of urban revitalization has quickened.

Now a new tramline extends a handsome riverside esplanade (called for in Rafael Moneo's master plan) north from the Guggenheim (opposite, bottom) past a shopping mall (by Robert Stern) and a hotel (Ricardo Legoretta) to a theater and conference-center complex (by Federico Soriano and Dolores Palacios).

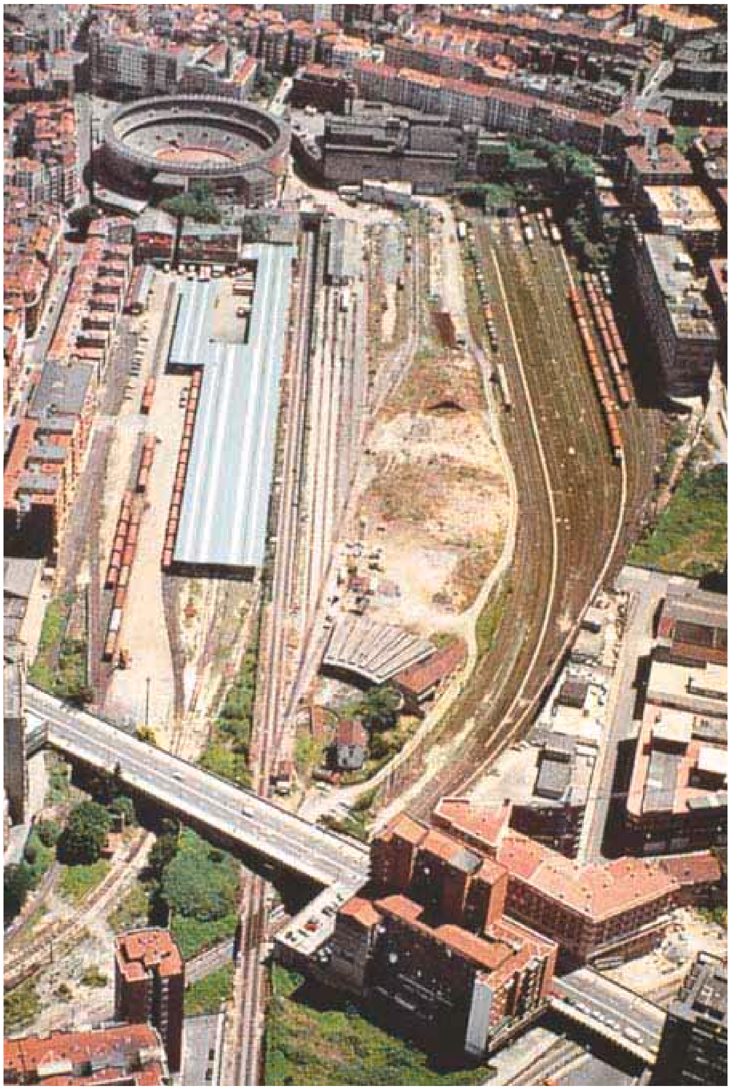
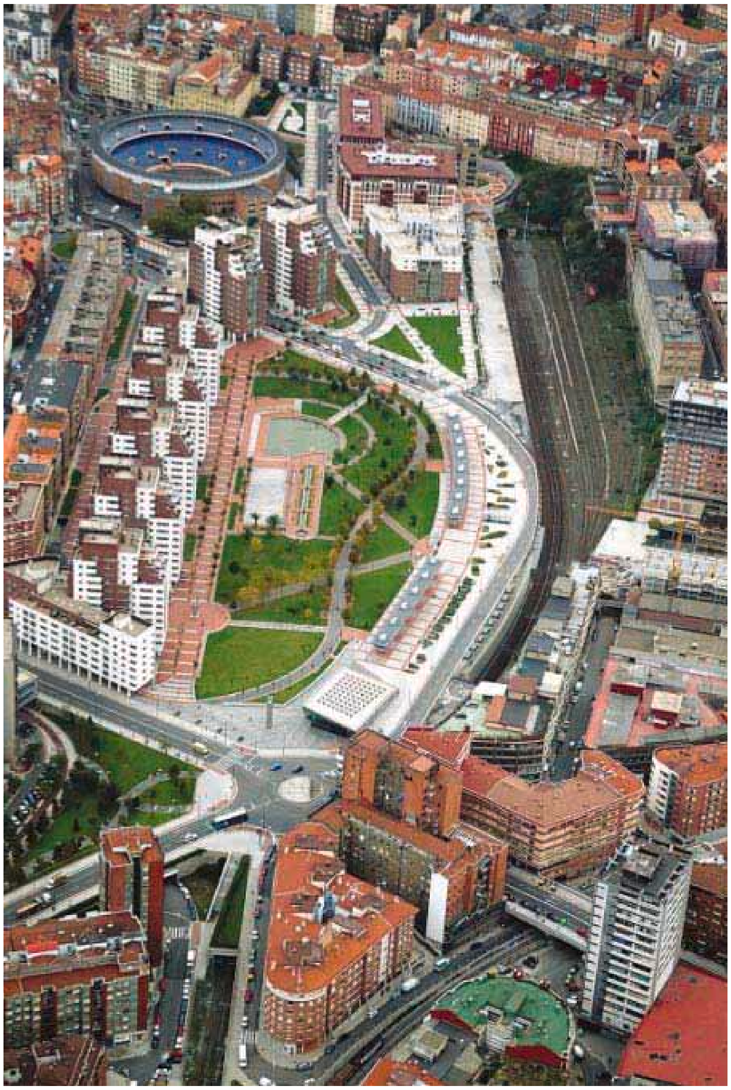
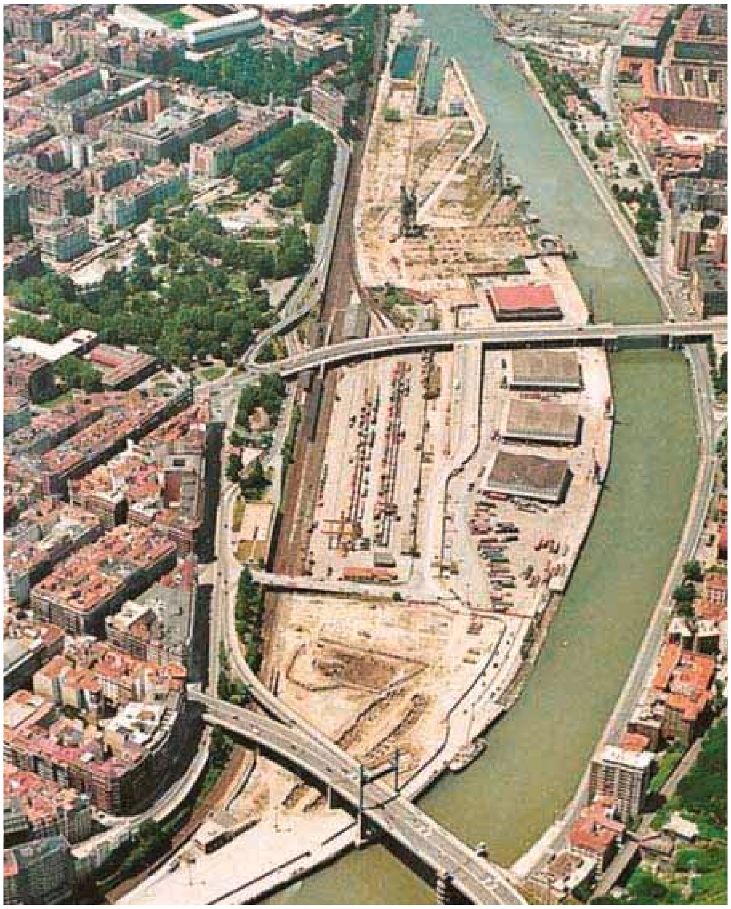
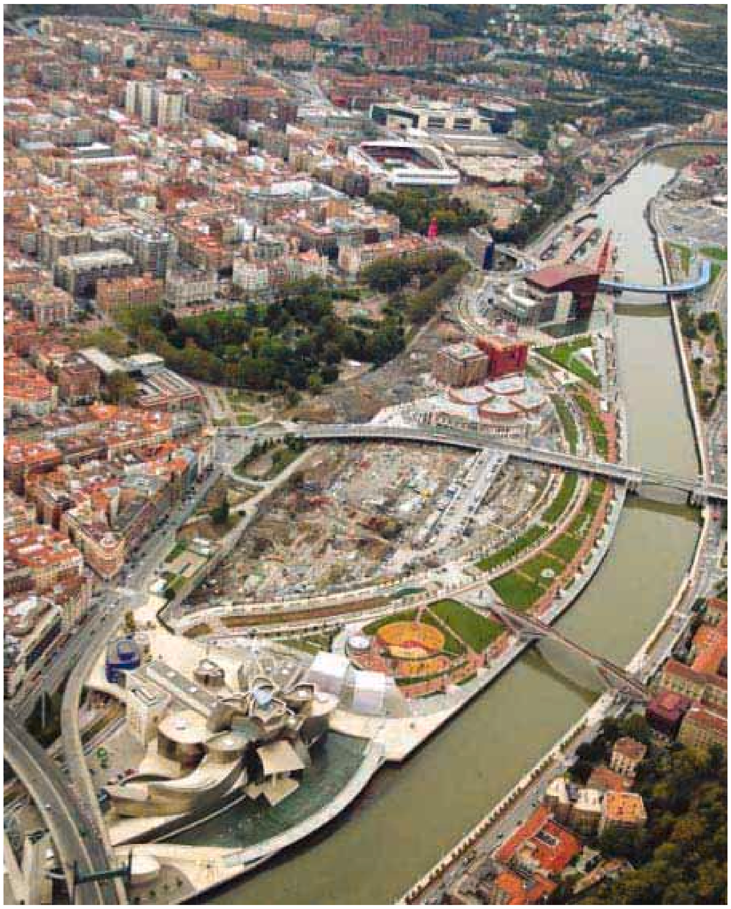
On the other side of downtown, a railway trench has been reconfigured to accommodate commuter-rail lines that once barricaded the waterfront. The trench is lidded by a new street dotted with new rail stops (opposite, top). A district of new housing has risen over the rail yard. Down the river, another former steel plant site called Barakaldo has been transformed with an intriguing stadium by Eduardo Arroyo, along with apartment blocks and a new industrial park devoted to avionics. Zaha Hadid is master planning the Zorrozaurre peninsula, a spit of land now occupied by a dilapidated jumble of small workshops. Surrounded by water on three sides, the site is pregnant with possibility. There's much more on the boards long term. It's hard to imagine any city of 300,000 in America attempting rebirth on this scale.

The scale of urban regeneration has been made possible because Ría 2000 has been able to sell redevelopment sites, most of them controlled by the city's port commission, at a profit, according to Ángel Nieva, the general director of the agency. But it is also uniquely well coordinated. Key agencies participate, according to Nieva: the port, the railroads, the housing ministry, the local government, the Basque regional government, and the Spanish national government (even as the Basques continue to insist—at times with violence—on greater political independence from Madrid). "Participation is at the highest levels—the heads or seconds-in-command of each stakeholder," Nieva added emphatically.

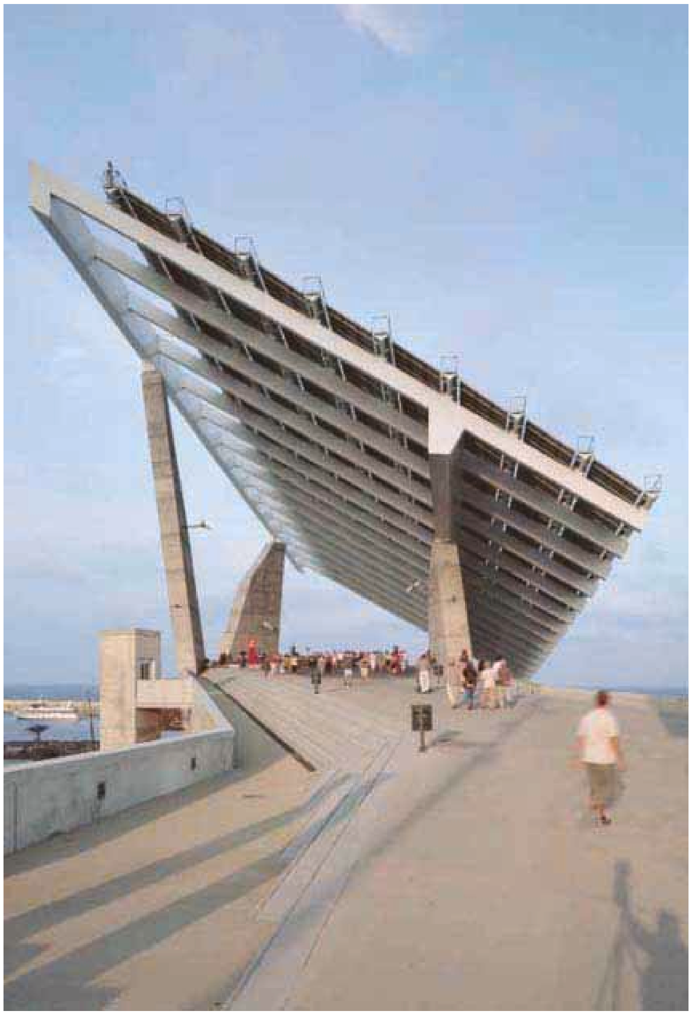
By comparison, it is almost inconceivable in America for a transit agency to partner with a major urban redevelopment or that an American port commission would cede power over its properties. (Consider the degeneration of New York's Ground Zero rebuilding into business-as-usual battles over political turf.) The cooperative nature of redevelopment in Bilbao is even unique in Spain, observers say, driven in part by the Basques' desire to show a "can-do" attitude in the face of widespread resistance to its separatist ambitions.

Bilbao has not transformed itself into Silicon Valley, as it hoped, but it has succeeded in retaining sophisticated industrial technology, and increasing some white-collar jobs. Although the metro area is not growing, a common phenomenon as Europe's population

Opposite: Obsolete freight yards (top left) now support housing, a park, and a rerouted commuter rail line (top right) in Bilbao. A new tramline extends a riverside esplanade north from Gehry's Guggenheim (bottom right) on the site of the derelict Euskalduna shipyards (1994 view, bottom left).

PHOTOGRAPHY: © COURTESY BILBAO RIA 2000



The looming presence of a photovoltiac array announces the massive scale of the Barcelona Forum. The plaza, six stories above the sea, roofs a new sewage-treatment plant. Beyond are a marina and bathing areas.

ages, Bilbao is not losing people the way many obsolete industrial centers in Eastern Europe are and the way most heavy-industry cities in America continue to do. Indeed, its housing prices are rising in tandem with the rest of Spain's, its residential center is healthy, and residents are rediscovering overlooked neighborhoods in the old city and outlying districts.

Barcelona: a growth aesthetic

As RECORD's Spain correspondent David Cohn has noted [June 2004, page 109], Barcelona has embarked on an urban transformation that is even more ambitious and far-reaching than what was done for the 1992 Olympics—the event that put the city on the global map and doubled the number of overnight visitors.

While returning obsolete industrial waterfronts to public use is popular everywhere, few cities would take on the 1.4-mile stretch of waterfront now called the Forum that was filled with freight yards, a smoke-belching power plant, and other essential but unwelcome infrastructure long ago pushed to this remote location. Today, there are parks, bathing areas, and marinas. And the Forum is remote no more. The Avenguda Diagonal, one of the city's chief thoroughfares, was extended through a declining industrial area called the Poblenou to make the Forum accessible. Two tram lines were also extended, and a metro station was added to an existing line. Roads and utility plants weren't moved; that was too costly. Instead, the power plant and a waste incinerator have been modernized to burn cleaner. A massive 27-acre plaza extends the Diagonal right over a new sewage-treatment plant and a stretch of ring highway that severed the city from the sea.

In the U.S., the cooperation between transit, maritime agencies, and utilities that looks all but seamless in Barcelona remains essentially unthinkable—not to mention the expenditure to create new public space at this scale. Coordinating turf-hoarding bureaucracies is one of the explicit purposes of Barcelona Regional, a metropolitan planning agency that brings together the government entities to realize larger redevelopment aspirations, according to Maria Buhigas, one of the Regional's architects. The regeneration of the Forum area, which has spurred housing and commercial investment on its edges already, is beginning to extend its influence inland to the Poblenou neighborhood, where obsolete industry will gradually give way to smaller-scale industrial, white-collar, and residential uses akin to gentrifying warehouse districts in the U.S.

Working with the city's planning agency, Barcelona Regional has charted the strategic future of huge swaths of the city and areas beyond, with similar large-scale redevelopment also slated for two industrial areas near the airport.

In the case of the Forum, the use of architecture takes massive and very adventurous form. The fissured blue exterior of an auditorium and exhibition building designed by Herzog & de Meuron, with its improbable and gratuitous cantilevers, forms a traffic-stopping terminus to the Diagonal. Beyond, a massive photovoltaic billboard by J.A. Martinez Lapeña and Elias Torres presides over the the acres of paved pedestrian space that cover the treatment plant. To one side, the plaza extends toward the water in long fingers—they happen to be six-story-high fingers. An amusingly twisted bridge takes you even farther, across an inlet to a marina, some cafés, and more garden spaces. On the other side, the Forum's plaza folds down to monumental flights of stairs that lead to an undulating promenade by Foreign Office Architects, and to the oceanside bathing inlets and artificial beaches.

JOSEP ACEBILLO ENVISIONS "A NEW URBAN GEOGRAPHY" IN THE EMERGING SCALE OF URBAN ACTIVITY.

Comparing the plaza-covered structures to icebergs emerg-

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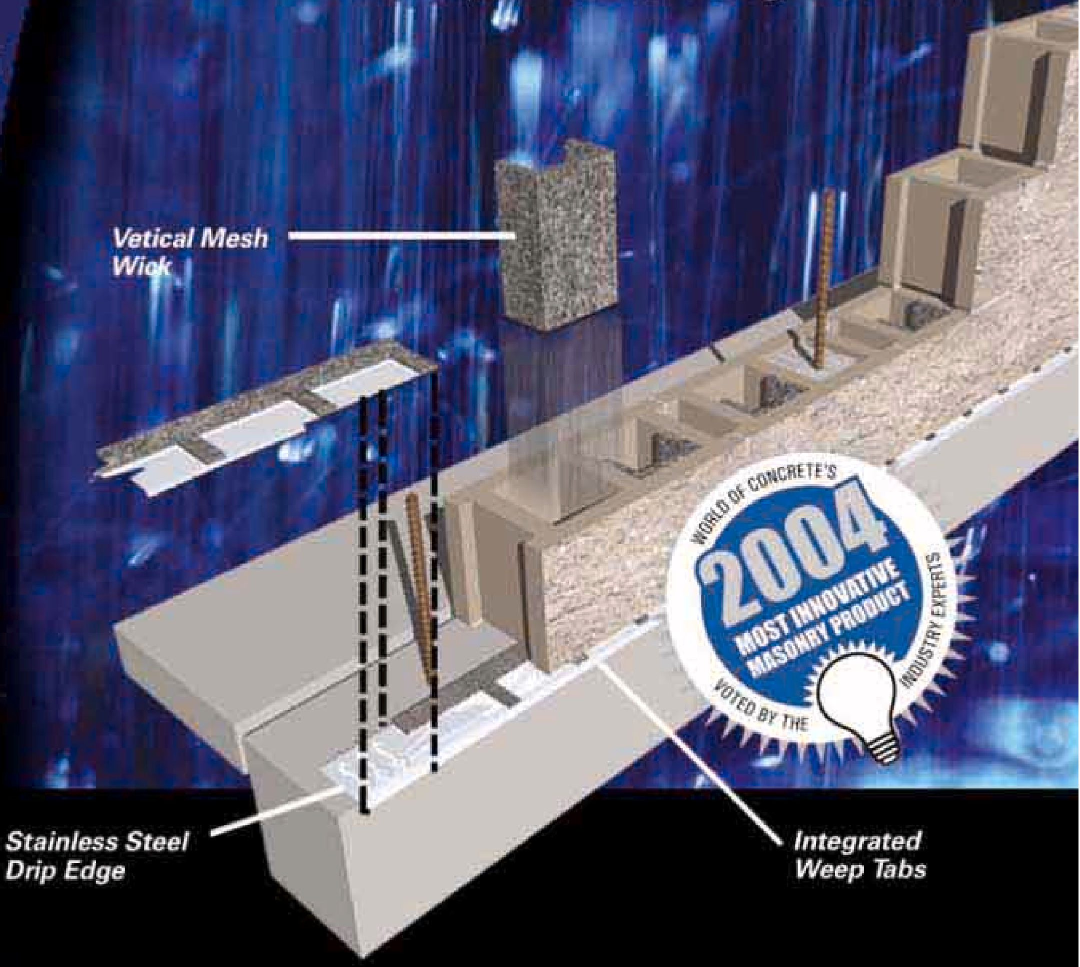
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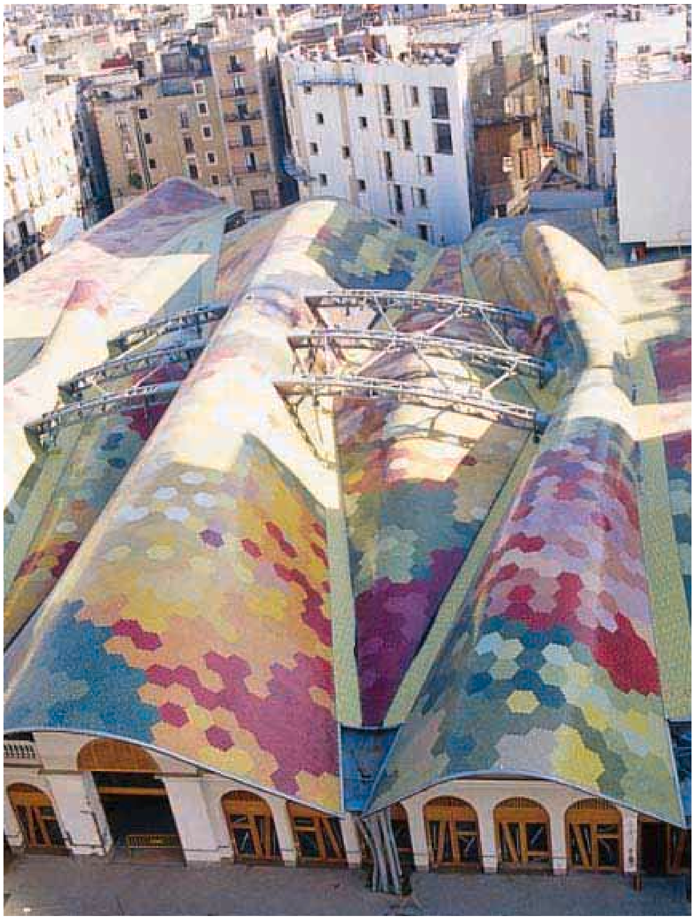
ing from the sea, Josep Acebillo, the Regional's director general, sees "a platform, a new kind of urban geography that provides close urban contact with the sea and weather. It is a boon in a densely inhabited city like Barcelona, where open spaces are in short supply."

Right now it feels intimidating. But it may come to seem more a part of the rest of the city when future residential uses and a branch of the university campus come along, as planners intend.

More traditional urbanism can be found at the Santa Caterina Market, an old fruit and vegetable market deep within a poverty-wracked area of the old city. The market has been spectacularly rejuvenated by the late Enric Miralles's firm, EMBT. An undulating blanket of brightly colored tiles now forms its roof, supported by a twisting and overlapping riot of trusses, glulam arches, and fragments of the building's prosaic old wood framing. EMBT carved away part of the old market to make room for public housing, which has been conceived as if hunks of the massive old city blocks had freed themselves and drifted into the market plaza. They maintain the medieval scale of the streets while admitting sunlight and air. EMBT master planned surrounding blocks with strategic building removals to light and ventilate precincts that previously received almost none of either. It's appealingly sensitive and finely grained.



EMBT reroofed a neighborhood market in a riot of colorful tile. Yet to open, it's magnetic presence is already stirring a troubled area.

PHOTOGRAPHY: © JAMES S. RUSSELL

As different as these interventions are, they share a powerful design concept, and a bold, integrated vision. Each is a costly, complex bet on the future of the city. There's almost no room for the freewheeling, entirely privatized, completely formulaic and innovation-averse American method here.

The radical—to us—notion posited by Barcelona and Bilbao is that we deserve to have cities shaped to the larger community's desires. Does it work? Like Bilbao, Barcelona cannot be said to have spectacularly retooled its economy yet.

Barcelona leads a European trend to attract economic growth by providing ample, high-quality, carefully integrated infrastructure and ample cultural and recreational amenities. The strategy is akin to that advocated by Richard Florida in his book *The Rise of the Creative Class* (Basic Books, 2002). With businesses less tied to place-based natural resources, Florida argues, cities prosper when they provide amenities that attract a desirable workforce. In his *The United States of Europe* (Penguin, 2004), T.R. Reid finds a payoff in the enormous investments by European Union countries in urban revitalization and infrastructure. (Bilbao's revitalization funds were sweetened by E.U. grants.) Europe, Reid claims, has become a continental economy increasingly able to dictate its economic terms to America.

THESE POWERFUL DESIGN CONCEPTS AND BOLD VISIONS ARE EACH A COSTLY BET ON THE FUTURE.

Partisans of American-style minimal public investment note that economic growth in most of Europe remains unspectacular. Even Europeans frequently criticize the often-plodding planning regimes, just as they often admire the dynamism of American cities—the quick way growth can react to changing economic winds—while deploring architecture's peripheral role.

Yet Barcelona and Bilbao's planner-driven model delivers at least one concrete economic advantage. The well-managed involvement of infrastructure agencies in planned growth creates urban efficiencies Americans can only dream of, like the European railroads that whisk visitors from airports to city centers. The pneumatic underground trash-removal systems that are beginning to appear in Barcelona, Bilbao, and elsewhere in Europe suggest both a management sophistication and a technological sophistication entirely out of reach of America's wealthiest places. Can America afford to ignore the fact that such urban places tend to work more efficiently for businesses, not just for tourists? Intriguingly, the Spanish public-private partnerships are based on American models. What Barcelona and Bilbao teach us is that there may be a way to reconcile America's advantage—its economic and urban dynamism—with urban form making that breeds trust by recognizing a community's quality-of-life aspirations. ■

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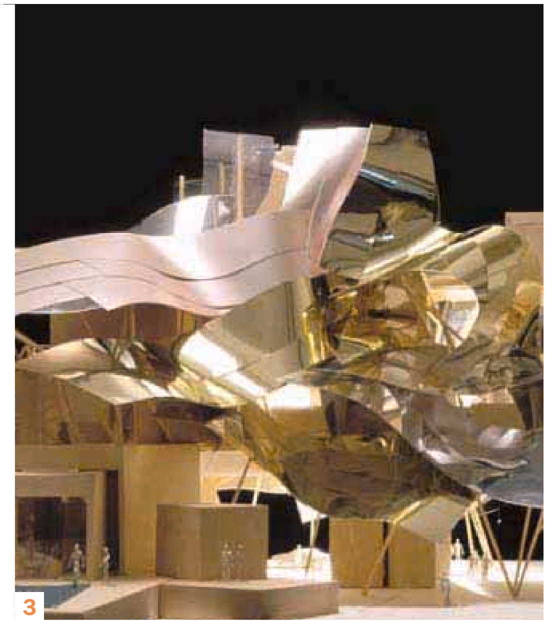
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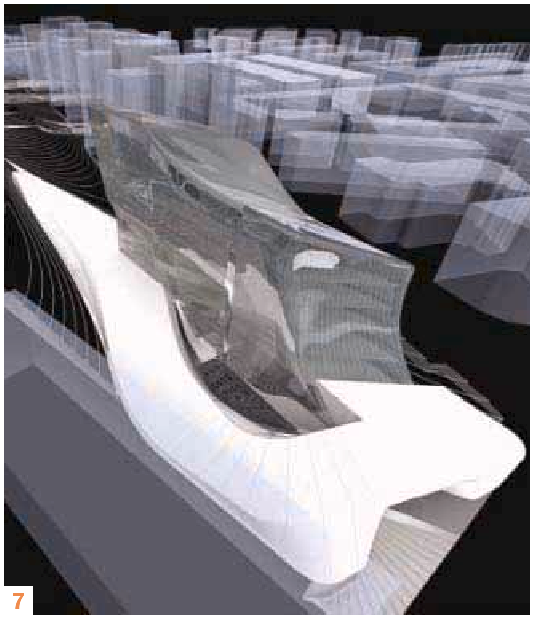
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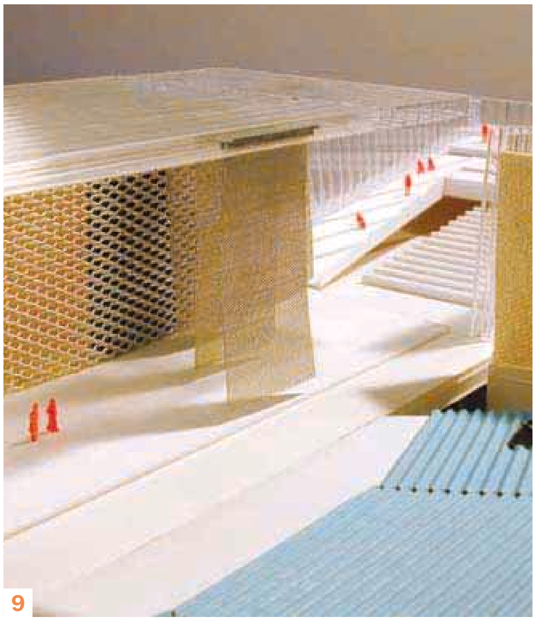
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The Spanish Import Export Business

By Sam Lubell

From the richly ornate Alhambra in Granada to Juan de Herrera's severe Rennaissance monastery at El Escorial in Madrid to Antonio Gaudí's unthinkably flamboyant Sagrada Familia in Barcelona, Spanish architects have for centuries made significant contributions to the field.

But Spain is not only the land of Gaudí; it is also the land of Gehry. Frank Gehry's now-iconic Guggenheim Bilbao (1996) is arguably the most successful modern project in the country, and symbolizes a new age in which foreign architects have invaded the Iberian peninsula armed with flashy computer programs, abstract theories, and globally shaped aesthetics, radically transforming the architectural landscape. These designers are drawn (among other reasons) by the success of contemporary projects like Bilbao, by the glut of construction in one of the most active construction markets in the world, by the ability to experiment in a building culture that gives architects dramatic leeway, and by a welcoming, even adoring public.

Spain isn't ready to be outdone. While foreign architects flock to the country, Spanish architects are exporting their talent around the world at an unprecedented pace. The new diaspora of Spanish talent is facilitated by an increased worldwide interest in contemporary Spanish architecture, respected for its mix of simple sophistication and a keen eye for structural detail. (It doesn't hurt that Spanish design magazines have made it their mission to promote this development.) And so the import and export of talent in Spain at this moment makes the country a wonderful lab for international creativity, and an excellent case study—a positive one, it is hoped—of the increasing globalization of architecture.

The foreigners are coming!

In many ways, the influx of foreign architects to Spain is similar to (but not as large as) the recent parade of international talent to China. Development in Spain was long stifled by the Franco regime but burgeoned after his departure and the country's subsequent financial upturn, along with generous E.U. subsidies, leaving a tempting market for international firms. According to Spanish consulting firm Analistas Financieros, construction made up 9.8 percent of Spain's economy in 2003, versus an average of 5.6 percent for the E.U. Like China, the country has sought to promote its dynamic new international presence and wealth by enlisting tested talent from the architectural scene. With successful projects like Bilbao, which has been attracting about one million visitors a year since its opening, and its Bilbao Effect (Spaniards call it the "Guggenheim effect"), the demand for foreign architects by public and private clients has grown that much more.

The number of architects entering Spain in the past five years is nothing short of amazing. Gehry, for one, has been asked to revamp another city, Elciego, with a public winery of Spanish limestone and titanium that the firm says is intended to help the city "redefine and invigorate its public image." Completion is set for 2006. Gehry is also working on a hotel in the regenerating Poblenou district of Barcelona. French architect Dominique Perrault's firm has four projects, making Spain its largest market. British-based David Chipperfield has six, and Swiss firm Herzog & de Meuron has eight. Other high-profile names include Zaha Hadid (four projects, including Euskatren headquarters in Durango) and Rem Koolhaas's OMA (Cordoba Congress Center and Logrono train station).

"The rest of Europe is very built already, and the architecture scene is a bit more dead," says Juan Fernandez Andrino, an architect based in Spain working for Perrault's office. "In Spain, they're always looking for new people, new ideas." Adds Herzog partner Ascan Mergenthaler, "I think Spain is the only place in the world besides China where you can do radical urban change and intervention."

The itch to build is evident in public architectural enthusiasm, also spurred by a strong tradition of visual culture. Peter Eisenman, who is building the Galicia City of Culture, an elaborate complex of cultural buildings in Santiago de Compostela, has been floored by the response. "I walk into hotels where I'm known. I can get a table in restaurants. It's rare in the U.S. to get that kind of public recognition," says Eisenman, who says he is asked to meet with the region's president every time he visits. Other designers rave about the hundreds of people who come to their lectures and even line up around the fences of their construction sites.

The country also provides architects a laboratory in which to experiment. Most foreigners say they are drawn to the flexibility and deference of Spanish contractors. Architects, not contractors, are in charge: Change orders are easier to process, and buildings can be a work in progress after construction documents have been formulated. "The system is negotiable," notes Mergenthaler. The downside, notes Fernandez Andrino, is that the process is often quite "messy," with delays, miscommunication, and disorganization, as the natural side effects of flexibility. And unlike China, Spain already has an established tradition of Modern architecture, so contractors, local architects, and the public can lend input to create sophisticated designs. This too has a downside: "Sometimes they [the contractors] think they know better than we do," adds Mergenthaler.

A new style

The contributions of foreign architects, often based in abstract theory, away from the confines of construction, are in many ways different from the Spanish design orthodoxy, which tends to draw on fairly simple geometries and a limited palate of materials and structure. Perhaps the symbol of the new international presence in Spain is Herzog & de Meuron's new Forum

Richard Rogers's NAT Barajas New Terminal, Madrid (1). Herzog & de Meuron's Barcelona Forum building, Barcelona (2). A model of Frank Gehry's Riscal Winerty, Elciego (3). Jean Nouvel's Torre Agbar, Barcelona (4). Dominique Perrault's Thalasso Hotel, Tenerife (5). Peter Eisenman's City of Culture of Galicia, Santiago de Compostela (6). A house in Galicia by David Chipperfield (7). A model of OMA's Cordoba Congress Center (8).

IMAGES: COURTESY RICHARD ROGERS PARTNERSHIP (1); © DUCCIO MALAGAMBA (2); GEHRY PARTNERS (3) ; © PETER VANDERWALKER (4); DOMINIQUE PERRAULT ARCHITECTURE (5); EISENMAN ARCHITECTS (6); ZAHA HADID ARCHITECTS (7); OMA (8)

building [RECORD, June 2004, page 109] in Barcelona, opened for last summer's Universal Forum of Cultures event. The flat, triangular building, covered in dark tile and shaped to the large intersecting boulevards around it, is marked on its facade with twisted crystals cutting into the surface, angled window slots, and computer-generated superimposed images mimicking water reflections (a nod to the seascape that the building abuts). The roof features a running water pool, with water falling into the public plaza through small crevices in the volume. Possibly more structurally unorthodox are soon-to-open projects like Richard Rogers's new Barajas airport terminal (designed with Madrid-based Lamela), a massive, structurally ambitious concoction of wavy concrete and ebulliant colors; Peter Eisenman's gargantuan City of Culture, which resembles the hillsides of Santiago de Compostela more than the forms of any buildings; and Jean Nouvel's Agbar Tower in Barcelona, a shimmering, bullet-shaped skyscraper whose red, blue, and green surface, wrapped in an armature of patterned-glass louvers, appears to disintegrate as it progresses upward into the sky.

While embracing new talent, Spanish architects acknowledge tension with the newcomers. Some Spaniards are frustrated by a lack of inclusion in international competitions (the government has responded, many say, by including an equal number of foreign and Spanish architects). Others, Fernandez Andrino points out, have appeared annoyed at the "frivolity" of foreign styles, suspecting that outside architects take a less rigorous approach to building. Some note that foreign architects get special treatment, whereas local architects remain bound by strict government design rules. Most feel that the growth in construction is not sustainable: They point out that the E.U.'s inclusion of several poorer countries to its membership will mean much less construction money in Spain, and that ambitious borrowing for construction could soon lead to a debt crisis in the country.

> Spain has become a laboratory for international talent, while its architects are testing the world scene.

Spain is the new black

Nevertheless, while foreign architects seem to be beating down Spain's doors to get work, Spanish architects are banging right back, with commissions and demand for their work growing around the world.

Modernist-style practitioner Ricardo Bofill has completed or is planning an unbelievable 111 projects outside Spain, in France, the United States, the Czech Republic, Luxembourg, Japan, China, Lebanon, Morrocco, and elsewhere. Juan Navarro Baldeweg is working on a glass-infused, sculptural office building in Amersoort, the Netherlands, while Alberto Campo Baeza is completing an elegant "box" of glass and concrete in Garrison, New York. One of the pioneers of the Spanish "export business," Rafael Moneo has completed influential foreign works such as the heavy, but simple and pristine Cathedral Of Our Lady of the Angels in Los Angeles and the assiduously rectilinear Cranbrook Art Museum in Michigan. Having designed 10 international projects, he is now working on four more, including a student center at Rhode Island School of Design in Providence and a science and engineering lab for Harvard University. The RISD project, which has a square envelope, horizontal bands, a Roman brick base, and limited glazing, is seen as a staid but glowing "lantern" for the city.

While the rise of Spanish work outside the country is partly a natural outgrowth of the internationalization of architecture, it is Spain's adherence to a different, some would say old-fashioned, style of building based in the rigors of construction that often makes it popular in the rest of the world. Perhaps its simplicity and human scale is an antidote to the head-spinning cacophony of today's emerging styles.

"I think what many like about our architecture is its purity, logic, and rationalism," says Miguel Quismondo, a Spanish architect working on Campo Baeza's house in Garrison. "It stays with a simple plan." Fernandez Andrino calls this style "Modernism with a touch," while Jean-Pierre Carniaux, a partner with Bofill, calls it "Archaeomodernism." Owing, say many, to the relative isolation of the Franco years, to the highly regimented, engineering-heavy Spanish architectural education system, and to somewhat lower technological standards, the style began to catch on immediately after Spain returned to the world community. "After the change of government, the world looked to Spain," says emerging practitioner Antonio Cruz. "They discovered very good architecture, and they were very surprised."

Exceptions

Yet not all exported work is restrained and "pure," as is evidenced by prolific Spanish architects like Santiago Calatrava, Enric Miralles Benedetta Tagliabue (EMBT), and Foreign Office Architects (FOA), whose designs, still rooted in structural rigor, often include the deconstruction of traditional forms. EMBT, whose work has become increasingly unorthodox since its inception, has garnered bewilderment and adoration for the dazzling jumble that is the new Scottish Parliament [RECORD, February 2005, page 98] in Edinburgh, for a deconstructed town hall in Utrecht, the Netherlands, and a chaotic music school in Hamburg, Germany. Calatrava, designer of the Athens Olympic Complex, and winner of this year's AIA Gold Medal, has built one of the most impressive international portfolios of any living architect, although some find his huge, irregular forms (and his base in Zurich) "un-Spanish" (he points to both international and Spanish influences). FOA, based in London, and led by partners educated in Spain and abroad, has created or is planning digitally inspired works in Britain, the U.S., Japan, and South Korea. Younger Spanish architects, even more plugged into international architecture and its styles, theories, and technologies, have recently begun exporting their architecture. Works by Cruz y Ortiz (Rijksmuseum in Amsterdam and the Basel railway station in Switzerland), Mansilla + Tuñón (designing a house in China that merges simplicity with unusual playfulness), and Carlos Ferrater (the crystalline Aquieila Tower in Venice and a digitally enhanced concert hall in Le Mans) are setting the stage for the next phase of Spanish work abroad, combining structural rigor with theoretical experimentation.

Some traditionalists bemoan the fact that the new "international style" is beginning to merge across countries, flowing in and out of borders as if they no longer existed. Quismondo notes that Campo Baeza, his boss, "would say sometimes this influence may become contamination." But both old guard and new in Spain appear to support the emphasis on a common goal: excellent design, espousing what Faero Polo calls a "professional rejection" of the banal, corporate work that often accompanies architectural globalization. Which raises an important question: If Spain can serve as a new model, is it possible that globalization does not have to mean the homogenization of culture and aesthetic sensibility? Perhaps it can begin to incorporate the keenest elements of regional and international architecture. Perhaps the newest designs can contain the best of both worlds. ■

Ricardo Bofill's Shisheido Building, Tokyo (1). A model of Rafael Moneo's RISD Student Center, Rhode Island (2). A rendering of Alberto Campo Baeza's Garrison, New York, residence (3). Santiago Calatrava's Olympic Velodrome, Athens (4). EMBT's Hamburg Music School (5). Foreign Office Architects' Yokohama International Port Terminal (6). Carlos Ferrater's Aquieila Tower, Venice (7). Cruz y Ortiz's Basel Train Station (8). Juan Navarro Baldeweg's Woolworth Center addition, Princeton, New Jersey (9).

IMAGES: COURTESY RICARDO BOFILL TALLER DE ARQUITECTURA (1); RAFAEL MONEO ARCHITECTS (2); ALBERTO CAMPO BAEZA ARCHITECTS (3); THE KREISBERG GROUP (4); © DUCCIO MALAGAMBA (5); FOREIGN OFFICE ARCHITECTS (6); CARLOS FERRATER (7); © DUCCIO MALAGAMBA (8); © DENISE APPLEWHITE, 2002 (9)

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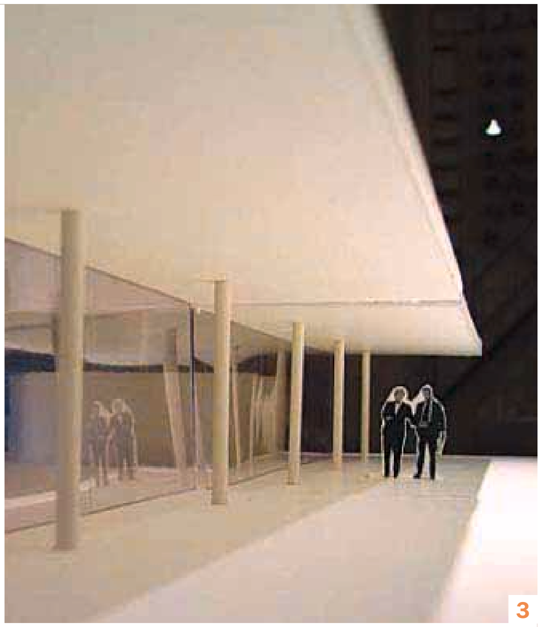
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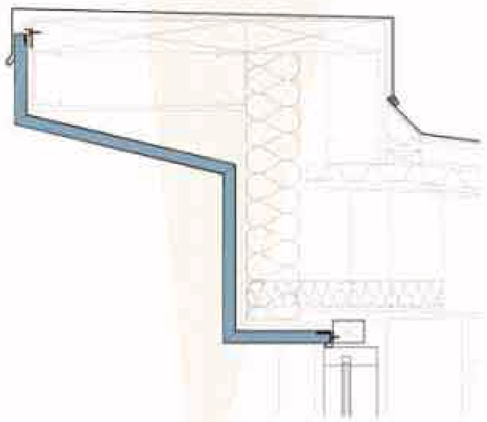

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Why Does Spain Love Architecture So Much?

By David Cohn

Seven projects in this month's issue take the pulse of contemporary Spanish architecture. Little known to most outsiders, Spain has become a powerhouse of architectural talent over the past two decades, fueled by a growing economy, a thriving public sector, and a thirst for the symbols of modernity that mark the country's emergence from the underdevelopment and political repression of the Franco dictatorship (1939–75) into the community of democratic European nations. While Spain's best-known architects, such as Rafael Moneo and Santiago Calatrava, are among the most sought-after internationally, the current boom is led by a large group of lesser-known figures, many working in regional capitals far from the traditional centers of the design scene, Barcelona and Madrid. Their work shares a sharply chiseled sculptural precision and a dignified austerity, occasionally mixed with more formally complex and experimental approaches, traits that spring from common origins. The architecture community is closely knit, organized in small practices around local schools of architecture and professional associations, with a rigorous professional training and esprit de corps. A Modernist tradition is deeply rooted in Spain; it has been passed from master teachers to students and apprentices in an uninterrupted chain since the 1950s.

Spain today is one of the European Union's biggest success stories, with an economy that continues to grow at a rate well above the European average, and a standard of living that is fast approaching the levels of countries such as France and Germany. This growth is due in part to massive investments in infrastructure, urban renewal, business incentives, agricultural reforms, and other initiatives financed by the European Union with the express purpose of bringing such growth to poorer regions. Since joining the Union in 1986, Spain has received $95 billion (73.2 billion euros) in "Funds of Cohesion" and "Structural Funds," more than any other member.

Public investment spurs growth

Spanish governments at the national, regional, and local levels have used such investments to strategically guide economic development, with policies that have directly benefited Spain's public architecture. In 2004, for example, the Ministry of Development budgeted $21 billion (17 billion euros) in public and private infrastructure investments. Local authorities have sponsored the construction of new commuter lines, conference centers, trade fair complexes, office parks, and other facilities, and they often turn to global-scaled events to orchestrate urban improvements and promote local economies, such as last year's Barcelona Forum, Zaragoza's International Exposition of 2008, and Madrid's bid to host the 2012 Olympics. Hoping to emulate the successful formula of the Guggenheim Museum in Bilbao, other regions commission daring works of architecture, such as Peter Eisenman's upcoming City of Culture that sculpts a hillside in Santiago de Compostela. Spain's decentralization of state power to 17 regional "autonomies" has promoted the creation of a gamut of new cultural institutions in provincial capitals, and investments in public health and educational systems at all levels.

Economic growth has brought new urban development, particularly in the housing sector, which has been fueled by pent-up demand, low interest rates, and spiraling prices. New development is directed by local authorities through General Plans and Partial Area Plans that determine the location of developments in coordination with new highways, public transportation systems, and other infrastructure. These plans lay out streets, parks, and public services and define building massing and other aspects of zoning. While such planning is generally carried out by municipal technicians with little flair, Spain has avoided much of the opportunistic sprawl found around American cities.

David Cohn is an international correspondent for RECORD*, based in Madrid.*

The city of Barcelona also takes an unusually active role in encouraging private developers to commission well-known local and international architects, like the private projects under way by Jean Nouvel, Dominque Perrault, Richard Rogers, and others.

An architectural laboratory

It is thus no accident that all the projects presented in this issue are public works. Even modest works are generally allocated through design competitions in collaboration with Spain's professional associations. Private clients and developers tend to be much more conservative. The Santander Bank, Spain's largest, has just completed a suburban campus designed in a Postmodern style by Kevin Roche, for example. But there are signs that this too is beginning to change. Oil giant Repsol YPF's recent plan for a new corporate headquarters tower in Madrid by Norman Foster is one example.

The economic and social renewal of Spain has helped promote not only an architectural blossoming, but a cultural renaissance in areas as diverse as film, literature, popular music, and even gastronomy. Economic analyst Antonio Subirá comments, "For the first time in various centuries of wars, dictatorship, and social upheavals of every kind, we have become a normal country." This stability has allowed Spain's native creative genius to flourish. As Kurt Forster, director of last year's Venice Biennale, told a Spanish newspaper, "Spain has become a synonym for an architectural, cultural, and political laboratory."

Among the factors that have contributed to the cultivation of architectural talent in Spain are the opportunities offered to younger architects through open competitions for public buildings, teaching positions in Spain's large public architectural schools, and special programs such as Europe's biannual public housing competition, open to practitioners under 40. Architecture is one of the most sought-after fields of study, attracting the most qualified students. Admitted through competitive testing, 80 percent of today's students are women, as is the case in other elite fields, such as medicine. This demographic surge should dramatically impact a profession that has already nurtured a number of well-known women practitioners. In Spain, architecture is as demanding and competitive a career as in the United States, but the potential rewards in today's economic boom are enticing.

With its broad support of the field, Spain has seen a continuous generational renewal among the ranks of its better-known architects.

With a playfulness reminiscent of his mentor Rem Koolhaas, Eduardo Arroyo brings color and an intriguing translucency to an 8,000-seat stadium. It's a beacon in the redeveloping Barakaldo district of Bilbao.

Ángela García de Paredes and Ignacio García Pedrosa are among an emerging generation of Spanish architects who advance the Spanish Modernist tradition. In the Almería Archaeological Museum they unite an understanding of the tectonic potential in materials with the expressive possibilities of structure.

PHOTOGRAPHY: © ROLAND HALBE, EXCEPT LOURDES JANSANA (OPPOSITE, BOTTOM TWO)

Figures who five years ago were promising beginners are now considered mainstream while still in their mid-40s, such as Luis Mansilla and Emilio Tuñón, Francisco Mangado, or Eduardo de Miguel, all featured in this issue. An emphasis on youth has characterized Spain's architecture at least since the 1930s, when recent graduates advocating the Modern cause were commissioned to build Madrid's University City. In the 1950s, younger architects led the revival of Modernism in Franco's Spain. Mature architects have sometimes suffered neglect, although recently many have been finding new opportunities for work in the rest of Europe and as a far away as China.

Local associations called colleges of architecture also have contributed to the vitality of Spanish architecture. The colleges, descended from the tradition of the medieval craft guilds, act as corporate bodies, registering and approving building plans before they are submitted for permits. The colleges set guidelines for architects' fees, as well as collecting and distributing them. The income derived from these services finances a broad range of activities, including cultural programs, magazines, competitions and awards, technical training, marketing, cooperative insurance, and savings societies. The colleges represent the public voice of the architectural community in their respective locales. They are grouped nationally in the High Council of the Architectural Colleges of Spain (CSCAE). The CSCAE collaborates with the Ministry of Housing's Department of Architecture on activities such as the exhibition center at the Nuevos Ministerios in Madrid (page 92), national competitions, and the Biennial of Spanish Architecture. Through the colleges, Spain's architects have a direct impact on national and local government policies affecting what they do.

STRATEGIC PUBLIC INVESTMENT IN ARCHITECTURE HAS BEEN KEY TO SPAIN'S ECONOMIC SUCCESS STORY.

An aesthetics of construction

One reason much Spanish architecture shares common formal characteristics is that architectural education in Spain is more technically focused than in the United States. Until very recently, architects routinely did their own structural calculations for most designs. As a result, their work is strongly based not only on the tectonic qualities of the materials used but on structural principles, evident even in the highly expressionistic work of the late Enric Miralles [as in the Scottish Parliament, RECORD, February 2005, page 98]. Working in small studios with a handful of associates, on generally relatively small-scaled projects, Spain's architects often still involve themselves closely in the construction process. Manuel Gallego Jorreto, author of the Presidential Compound in the isolated region of Galicia [page 84], works directly with stone masons, carpenters, and metalworkers trained in shipbuilding.

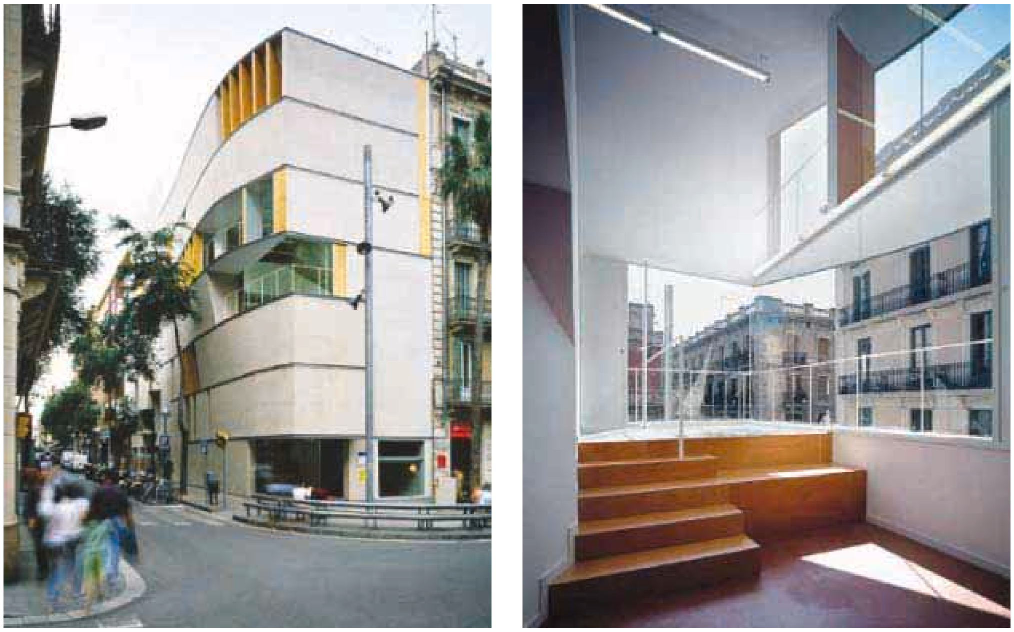
Modernism has historically been known as "rationalism" in Spain, as it is in Italy, an emphasis which has favored interpretations of architecture in terms of science, technics, and function rather than style. The architects who reintroduced Modern architecture to Spain in the 1950s (Franco purged the Modern architects of the Republic in 1931–39) found in a functional architecture a refuge from the nationalist rhetoric of the revivalist styles promoted by Franco. These architects were influential teachers and masters, and their impact is still strongly felt today: the eclectic, formally adventurous Francisco Sáenz de Oíza, with whom Rafael Moneo apprenticed in the 1960s; the proto-Minimalist Alejandro de la Sota, mentor of Manuel Gallego Jorreto, Juan Navarro Baldeweg, Josep Llinàs, and many others. There are more elaborate "organicist" form makers, such as Javier Carvajal, who taught Francisco Mangado and Eduardo de Miguel at the Pamplona School of Architecture, and José María García de Paredes, father of Ángela G. de Paredes (opposite, bottom).

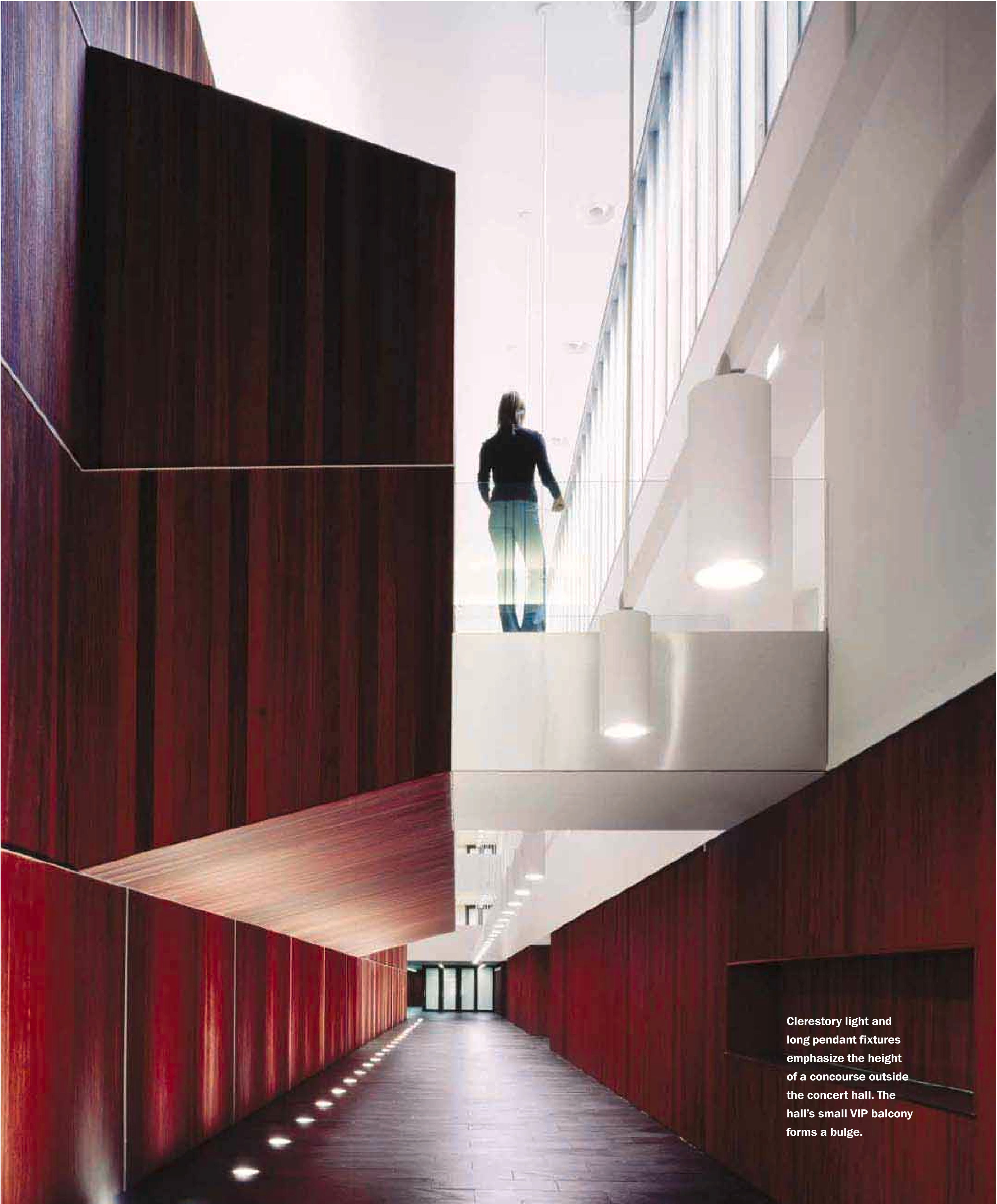
Yet while the functionalist stance of these figures is the source of the disciplined professionalism and formal restraint of much Spanish work, these men were also rebels in their time, and their work was often convulsed by radical formal experimentation, such as Sáenz de Oíza's Torres Blancas building in Madrid (1960–68), contemporary in spirit with Paul Rudolph's work in the United States. The more experimental work of Miralles, the partners Mansilla and Tuñón (once apprentices of Moneo), and others has its roots in this tradition as well, although younger architects such as Eduardo Arroyo (opposite, top) or London-based Alejandro Zaera, who both did stints at the Rotterdam office of Rem Koolhaas, are finding a wider horizon of reference in Europe as a whole.

While the revival of Spanish architecture has until now been largely a local affair, its influence grows in the rest of Europe, just as Spain's increasingly international orientation has aided its economy. Spain's adoption of the European social-welfare model has tilted the practice of architecture so strongly to public works, animating design with a clear social purpose. Such idealism may seem nostalgic in a Europe where several nations struggle with economic stagnation, declining public resources, and growing social unrest. In Spain, the so-called welfare state model still looks like the forward-moving edge of progress. ■

The editors at ARCHITECTURAL RECORD gratefully acknowledge the enormous contribution David Cohn has made to the preparation of this issue. Malcolm Blier rendered invaluable assistance.

While few emulate the prodigious expressionism of the late Enric Miralles, the suave drama of a library in Barcelona by Josep Llinàs leavens the dominant monastic austerity found among his peers.





Clerestory light and long pendant fixtures emphasize the height of a concourse outside the concert hall. The hall's small VIP balcony forms a bulge.

A THEATER AND CONFERENCE CENTER in Pamplona takes on a magisterial simplicity in the hands of Francisco Mangado

By James S. Russell, AIA

In his Pamplona, Spain, office, Francisco Mangado is a sunny presence as he darts from conference room to studio, good-naturedly barking commands to staff. Few thoughts are completed—he's onto the next point before concluding the last. I wondered how such a fast-moving intelligence could ever settle down. On-site at the theater and conference-center complex he designed for the Spanish province of Navarre, his explanation of the building unfolded as rationally and deliberately as the building he was describing. It is clear there are two sides to Mangado; the building embodies both.

Programmatically, it is a peculiar hybrid. It houses a conference center, with meeting rooms, a 54,000-square-foot exposition hall, and dining facilities. It also contains a 1,600-seat multipurpose theater and 600-seat chamber music hall. Such two-birds-with-one-building projects have gone up in several medium-size Spanish cities, but this 409,000-square-foot structure is among the largest. The idea is to share services and keep the facility in use both days and evenings.

Behind a vast, mostly empty plaza that is roughly textured by Belgian block paving, the building sits brooding like a primordial fortress. While look-at-me form making makes sense for culturally significant buildings, it was not for Mangado. "In this site," he said, "it was more important to shape urban spaces than to make an object."

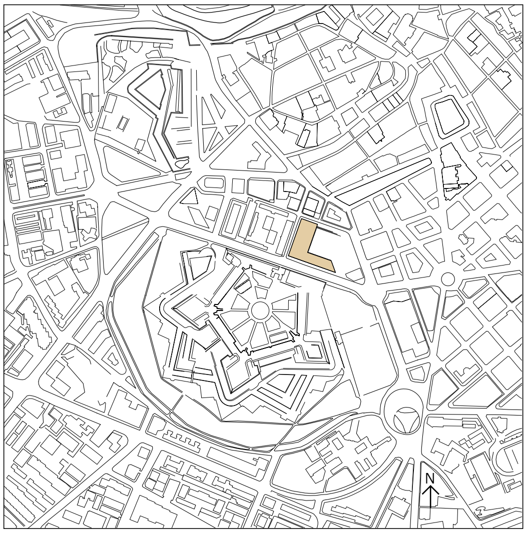
Conceptually, Mangado has corralled this very complex program into a magisterial simplicity. At this large site, long held by the military, the tight streets of medieval Pamplona meet a sector that grew rapidly and sloppily in the 1960s and 1970s. To bring coherence to the transition, Mangado formed street walls with an L-shaped building (site plan, right). The mute sobriety of Mangado's forms gives the building the visual heft it needs to take command of its surroundings. The plaza extends a network of older plazas that leads into the heart of the old city. These urban gestures, Mangado thinks, allowed his design to prevail in a competition that attracted 160 entrants.

Stepping inside, a much richer palette reveals itself. The full-height lobby divides meeting and theater functions, though the architect allows the circulation spaces of both to flow naturally into each other. Throughout, Mangado's evocative flair for the dramatic is grounded by a monastic austerity. He emphasizes both the length and the vertical dimension of the concourse that runs along the theater (opposite), for example. A sure command of light, materials, and proportion gives the authority to the straightforward gestures. In contrast to the play of light and dark in the public spaces, both the theater and chamber music hall are entirely faced—floor, walls, and ceiling—in blond-toned ash. Instead of spectacle, Mangado supplies cool elegance (and an acoustical middle path) to accommodate conferences, concerts, and theater.

With long steel box beams (each 3 feet wide by 8 feet deep) suspending a mezzanine, the column-free exhibition hall is quietly monumental (page 83, bottom right). Above it, Mangado stacked a suite of wood-paneled meeting rooms that open to elegant clerestories. They are reached by a concourse along which he has extended a full-length band of glass, punctuated by beefy wood supports. The feeling is of a cloister. The glazing is interrupted by a high square window that opens onto an especially ravishing view of the citadel remains. It is among several impish exceptions Mangado permits himself to the cool rationality of the whole.

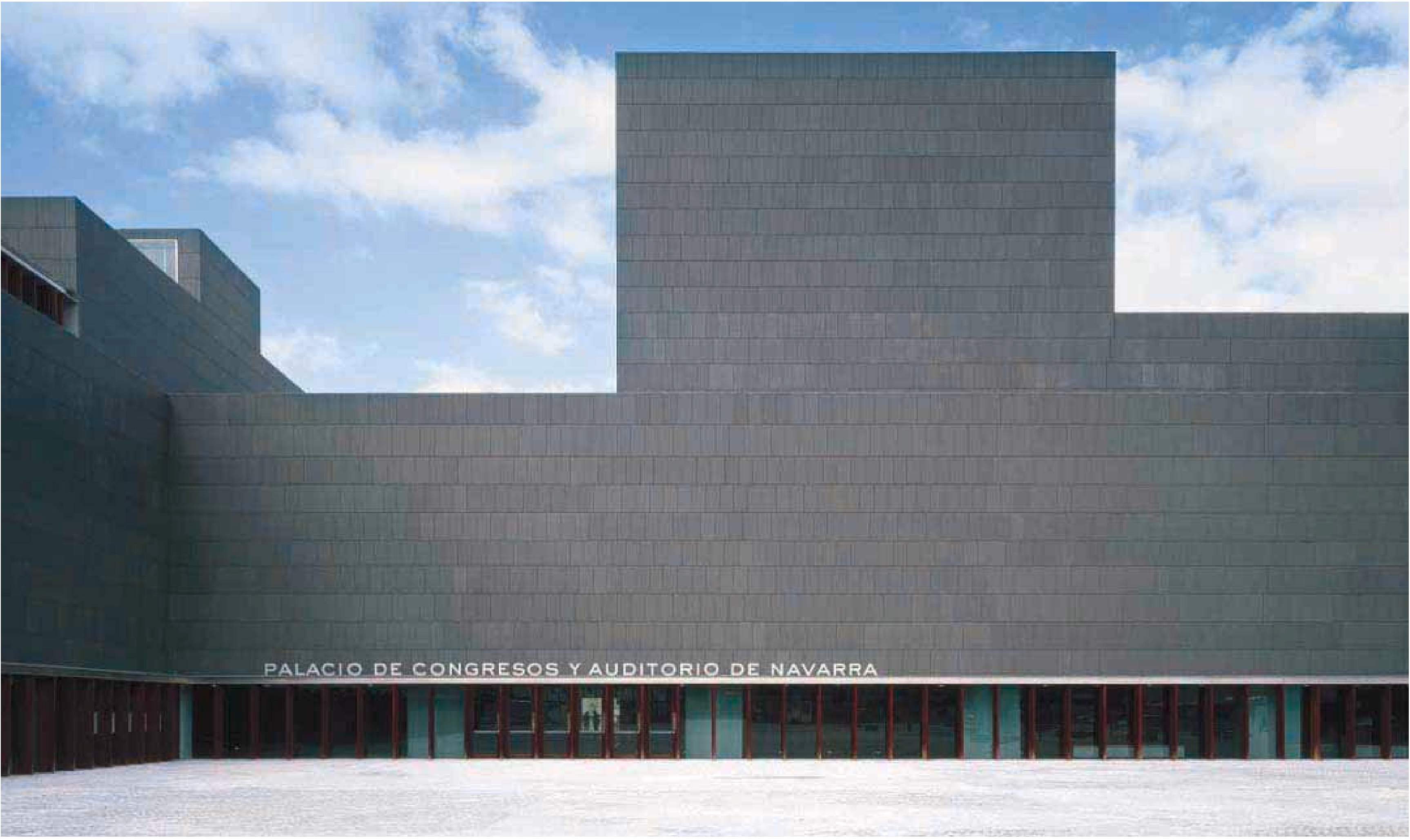
A rather larger exception presented itself early in excavation for the building, when elaborate, hitherto unknown foundations for the citadel were found beneath the exposition hall. Mangado dropped in a stair and worked additional exhibition space around them. They now form an extraordinary underground presence in the complex. That they feel so naturally a part of such a quintessentially Modern structure testifies to the gravitas Mangado has conjured with the conventional ingredients of contemporary construction. ■

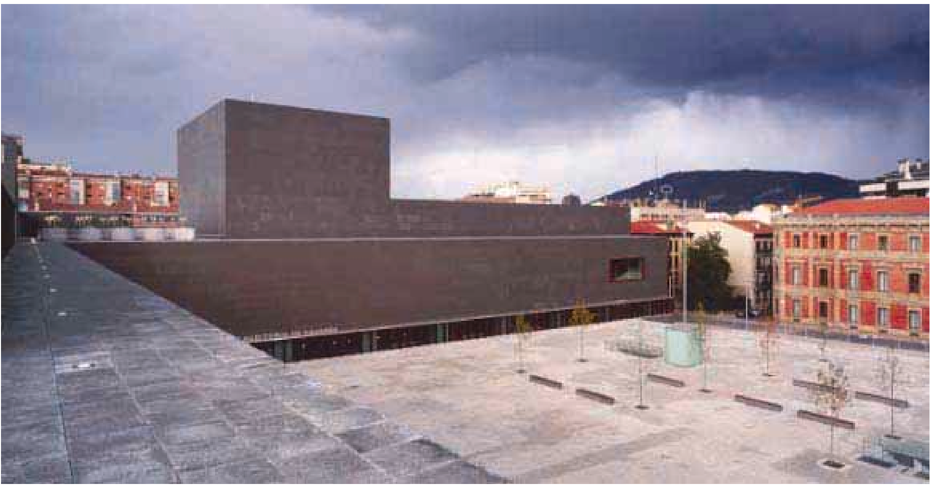
One wing of Mangado's building screens a busy thoroughfare with high, crenellated walls that echo the spectacular remains of a magnificent, star-shaped Renaissance citadel beyond. The other wing extends an existing street, focusing it on the ornate pedimented portal to the old fortifications.



Project: *Baluarte Auditorium and Congress Hall, Pamplona*
Architect: *Mangado and Associates—Francisco José Mangado Beloqu, Alfonso Alzugaray Los Arcos, Carlos Pereda, Isabel López, María Langarita, Laura Martínez de Gereñu.*
Engineers: *NB 35 (structural); Iturralde y Sagües (services); Higini Arau (acoustical)*

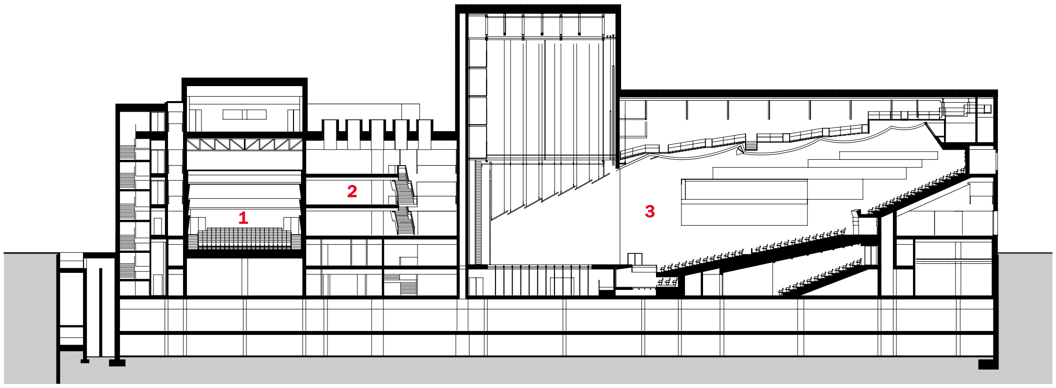
PHOTOGRAPHY: © ROLAND HALBE


PALACIO DE CONGRESOS Y AUDITORIO DE NAVARRA



Mangado set the building behind a spacious plaza (left). An elegant 19th-century parliament building completes it. The glass entrance reads as a slit (above), seemingly squeezed under the weight of a high wall of dark gray granite panels.

1. *Chamber music hall*
2. *Lobby*
3. *Theater*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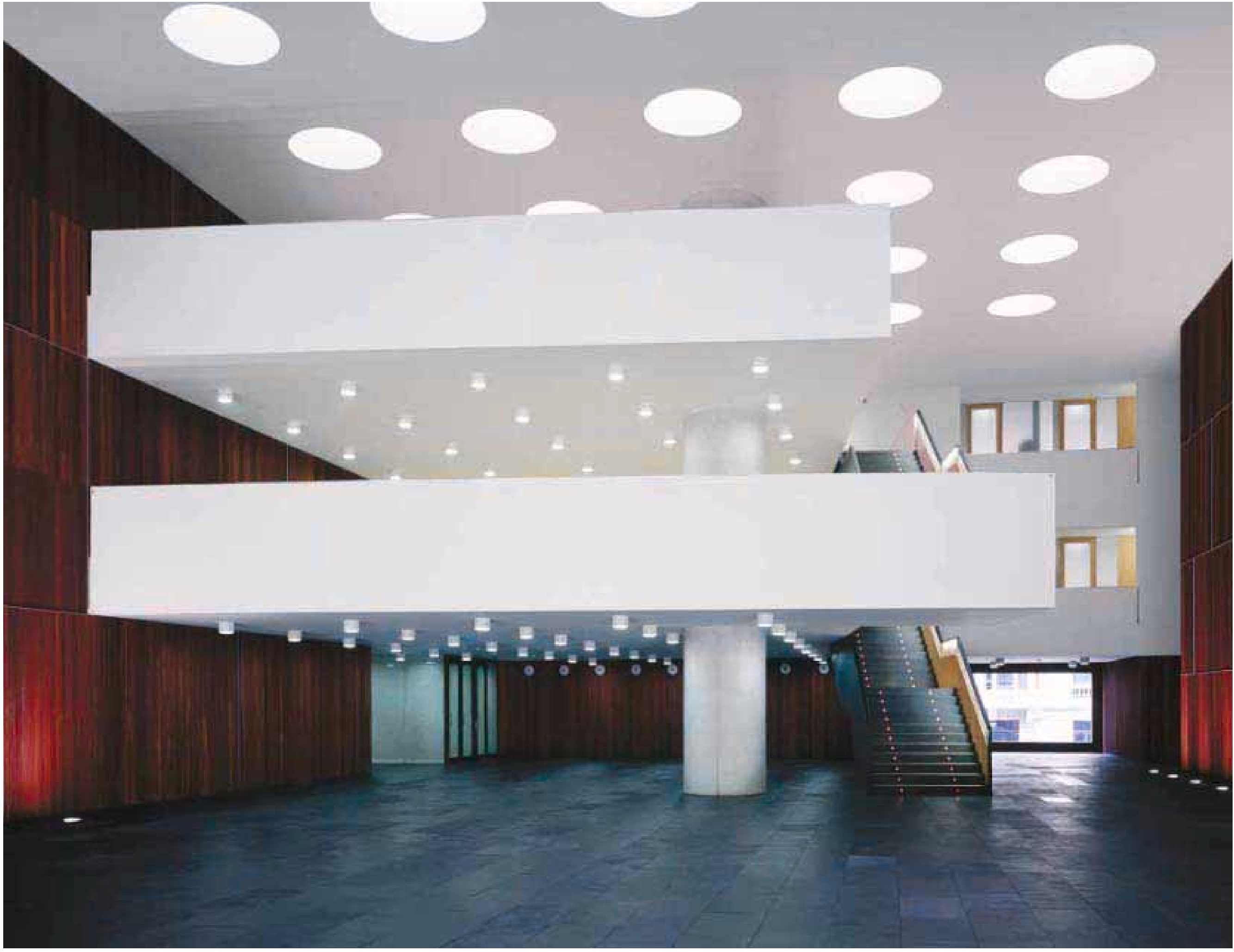
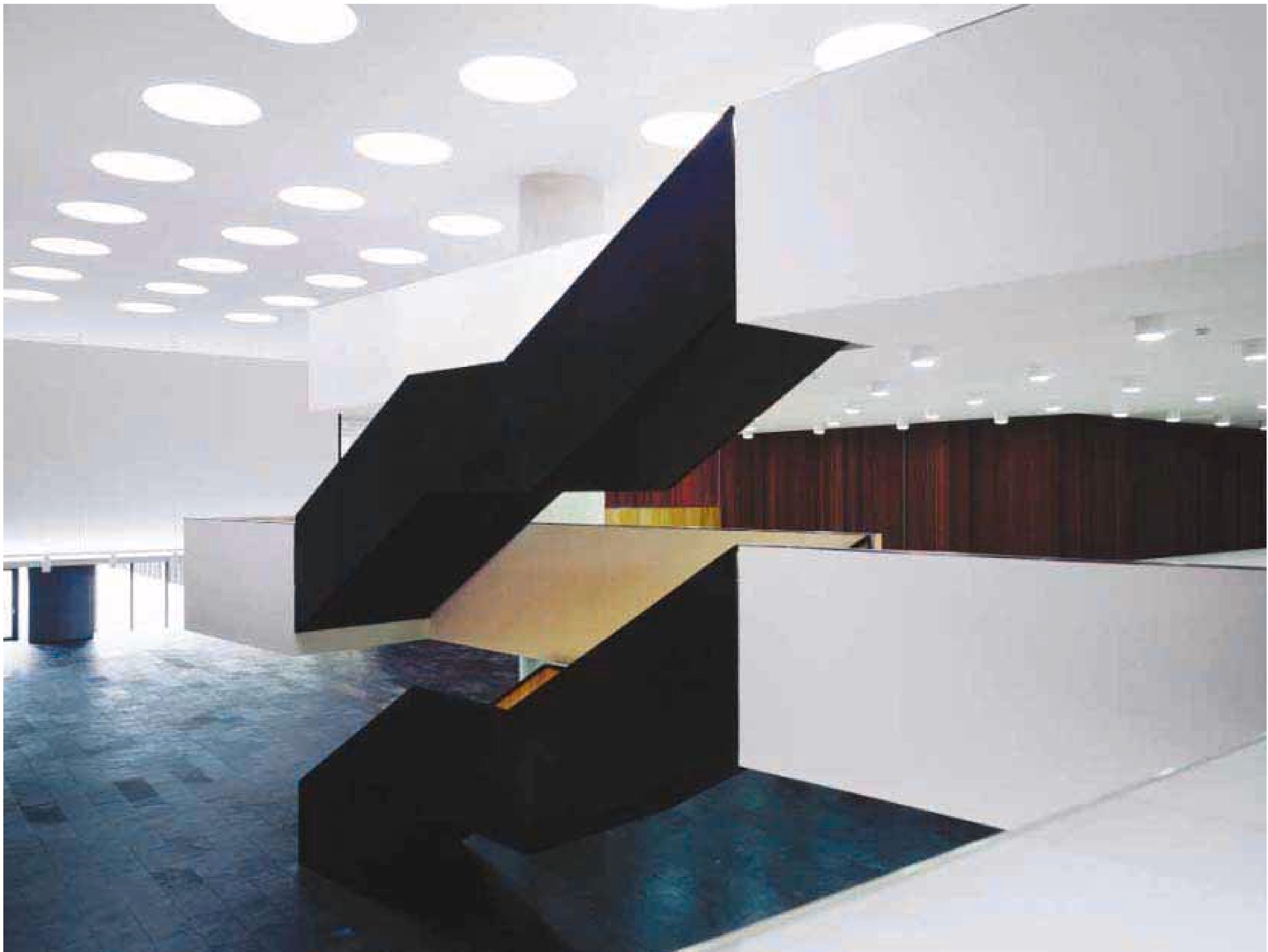
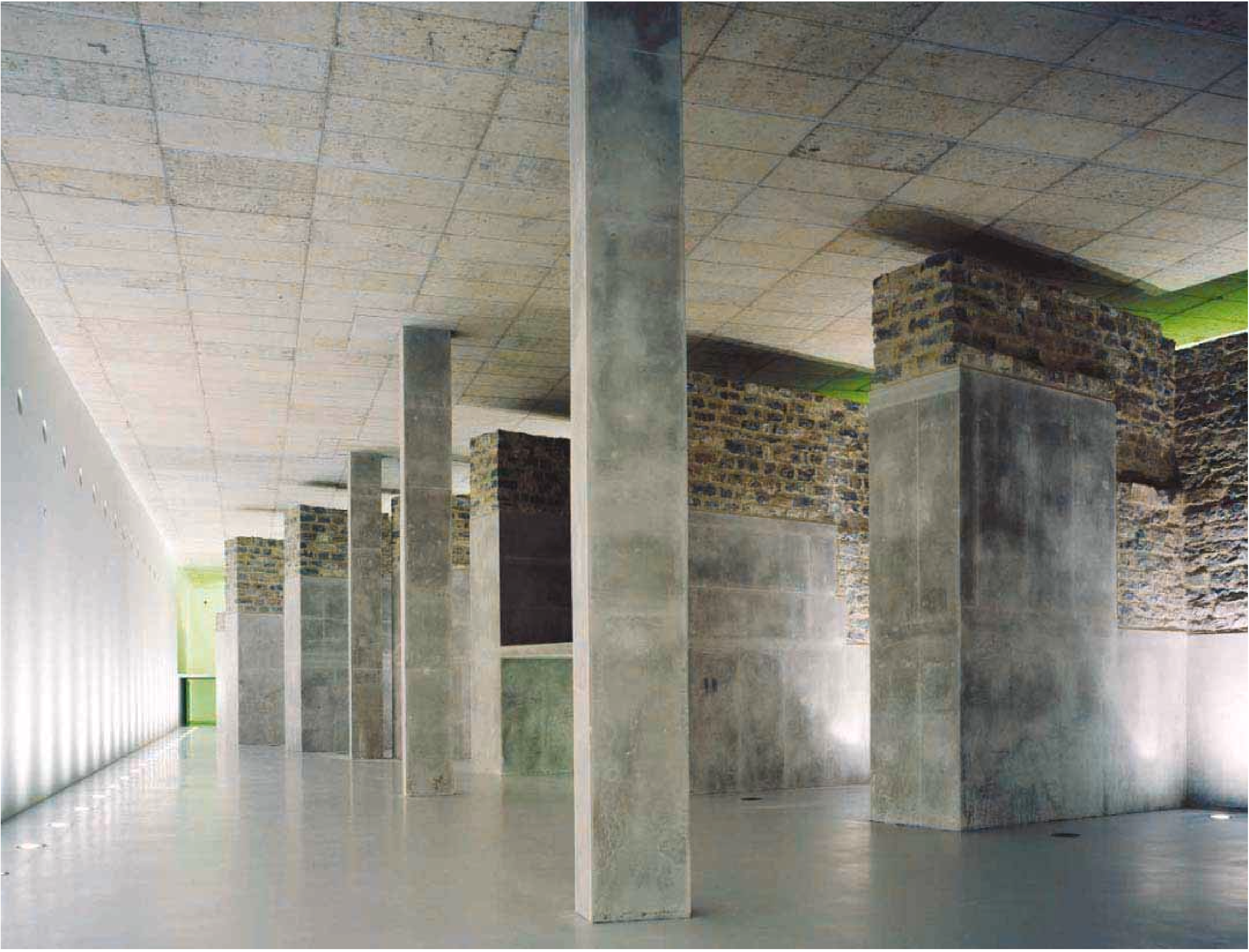
SECTION A-A

The main stair (this page), a beefy zigzag in treated, unpainted steel, appears to support distended landings cantilevered from this large room's single column. A surprisingly gutsy sculptural gesture, its drama is abetted by the contrast of white-painted drywall, the stair's dark steel, the slightly roughened surface of the flamed Indian quartzite floor, and the fluted, variegated hardwood panels.

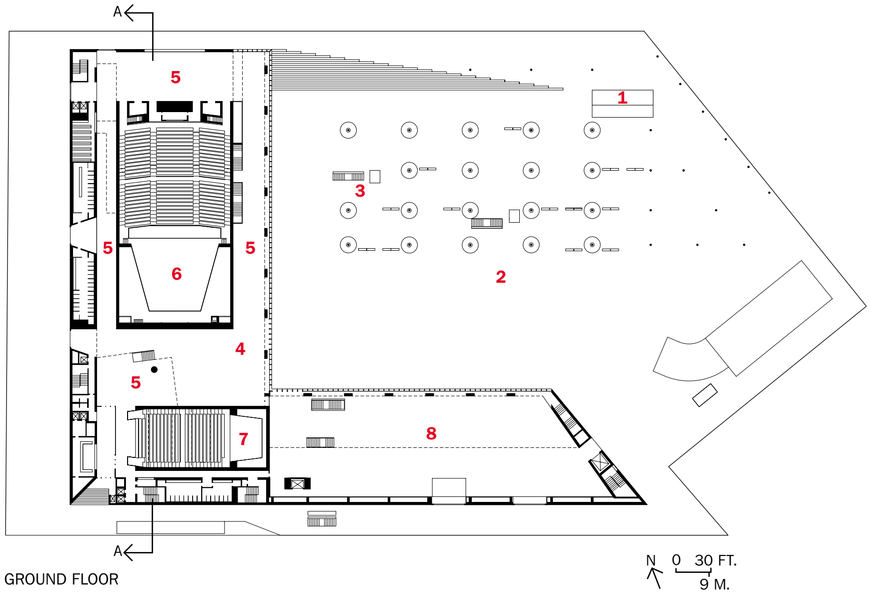






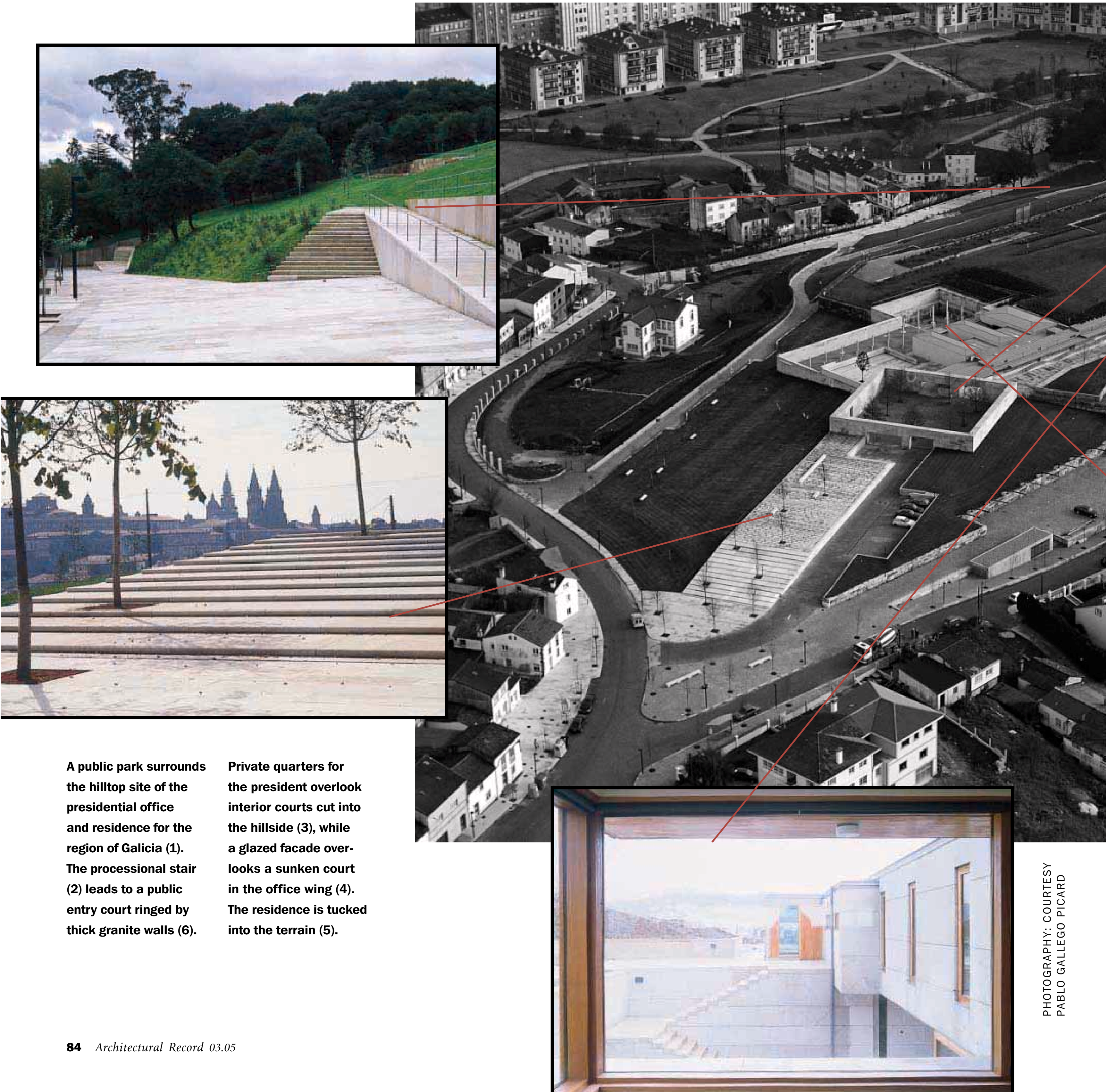
Mangado incorporated Renaissance-era ruins (above) found below the exposition hall (opposite, bottom right). A top-floor concourse opens to a view of the citadel (opposite, top). Intended for theater, opera, concerts, and oral presentations, the main multipurpose theater (opposite, bottom left) is boxy—comfortable rather than intimate.

1. *Ticketing*
2. *Plaza*
3. *Access to below-plaza parking*
4. *Lobby*
5. *Concourse*
6. *Theater*
7. *Chamber music hall*
8. *Exposition*



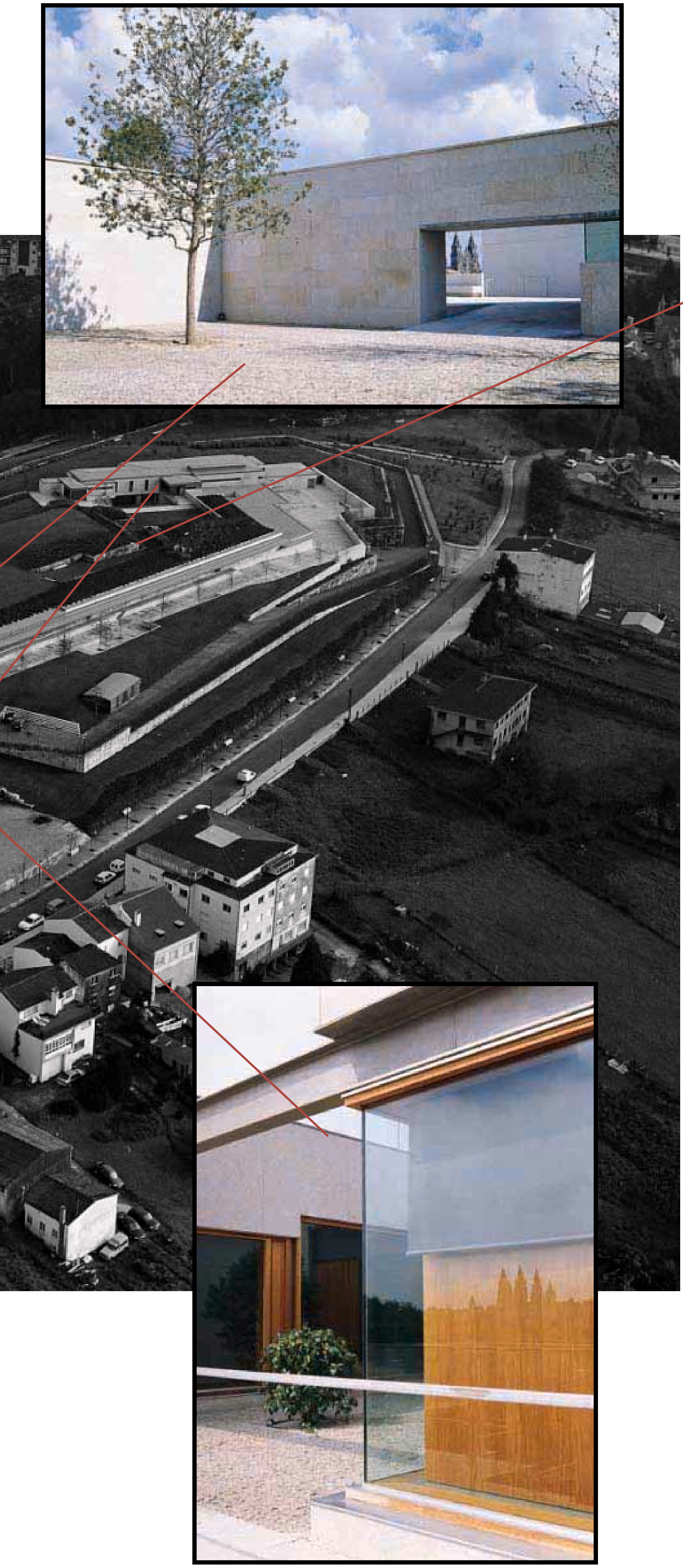
GROUND FLOOR

Manuel Gallego Jorreto lends the **PRESIDENTIAL COMPOUND OF GALICIA** an air of openness by nestling private and public spaces into a hilltop site



A public park surrounds the hilltop site of the presidential office and residence for the region of Galicia (1). The processional stair (2) leads to a public entry court ringed by thick granite walls (6). Private quarters for the president overlook interior courts cut into the hillside (3), while a glazed facade overlooks a sunken court in the office wing (4). The residence is tucked into the terrain (5).

PHOTOGRAPHY: COURTESY
PABLO GALLEGO PICARD



By David Cohn

Searching for an appropriate approach to the symbolic role of the Presidential Compound, a residence and offices for the president of the regional government of Galicia in northwest Spain, local architect Manuel Gallego Jorreto turned to the timeless granite structures of the region and its capital, the medieval pilgrimage city of Santiago de Compostela. Gallego Jorreto explains, "I thought of [the project] not as representing an aloof power, like a palace, but how to make the people who come here feel represented, so that you enter something where you feel among your people, your language, your place."

The compound is located on a hill in Santiago, where it enjoys privileged views of the magnificent Baroque cathedral and skyline. The structures and outdoor spaces are partially buried into the hillside to preserve the hilltop's green profile amid the city. Beautifully crafted granite walls range in technological sophistication from the dry-set, roughly squared-off "boulders" of the retaining walls in the public park that surrounds the compound to the finished blocks of the entry court, which are 4 feet thick—"so you feel the agreeable sensation of passing through the walls"—to the thin panels of veneer hung on the stainless-steel framing of the buildings themselves. Other finishes include zinc roofs, cedar framing, and floors of oak and tropical ipe wood.

The compound is divided between the public wing and the private residence, situated on opposite sides of the hill and connected by a spine containing services and security control. The public wing, used for offices and official receptions, overlooks a sunken walled patio. The residence's most private spaces are located around interior courts cut into the hill, while public rooms face the city. Due to its size and complexity, the residence became "almost like a village, with various foci," Gallego Jorreto says.

The architect apprenticed in Madrid with Alejandro de la Sota, a key figure in the revival of Spanish Modernism after the Civil War. Just as De la Sota used functionalism in his landmark Civil Government Building in Tarragona (1957–63) to deflate the rhetorical bombast of other official works of the Franco regime, Gallego Jorreto here mixes traditional materials and a distilled, exquisitely detailed Modern formal vocabulary to give the trappings of contemporary democratic power a humane and domestic scale. ■

Project: *Presidential Compound of Galicia, Santiago de Compostela*

Architect: *Manuel Gallego Jorreto—Jorge Cao Abad, partner in charge and project architect; Elisa Gallego Picard, Julio Grande Perez, design team*

Sources

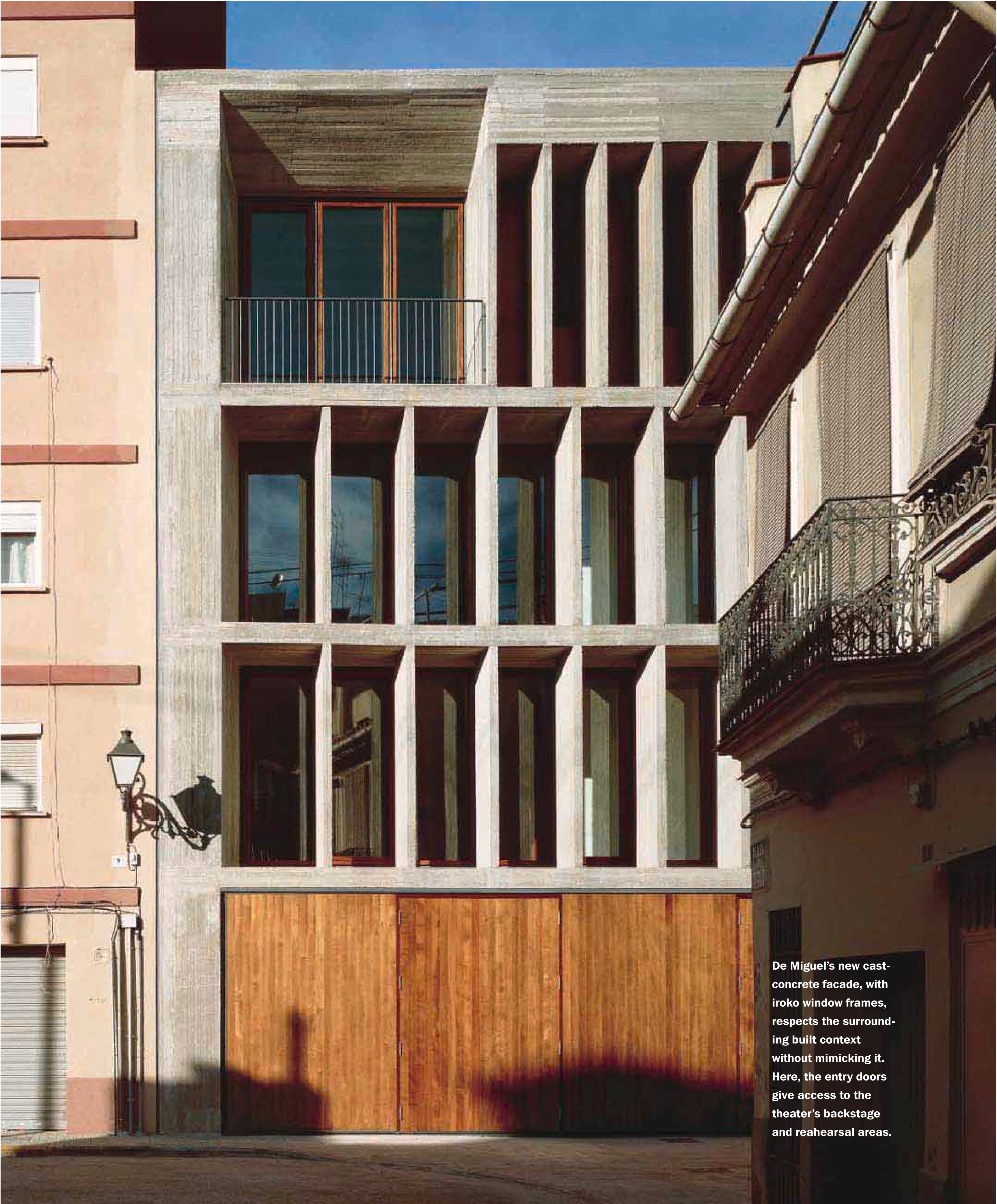
Stone: *Granitos Deza*

Concrete: *Hormigones Faro*

Zinc roofing: *Rendal*

Stainless steel: *Argimiro Rodriguez*

Landscaping: *Cespa*



De Miguel's new cast-concrete facade, with iroko window frames, respects the surrounding built context without mimicking it. Here, the entry doors give access to the theater's backstage and reahearsal areas.

At TEATRO EL MUSICAL in Valencia, Eduardo de Miguel breathes new life into the remains of a derelict early-20th-century music hall

By David Cohn

Born in the cold, mountainous region of Pamplona, Spain, architect Eduardo de Miguel migrated early in his career to the prosperous southern port city of Valencia, birthplace of paella and the architect Santiago Calatrava, and inspiration for local painter Joaquín Sorolla's watercolor beach scenes. In transforming Teatro El Musical—just a block from the beach in El Cabañal, Valencia's former fishermen's quarter—de Miguel brings a taste for sharp detailing, sensual materiality, and elegant, rhetoric-free forms acquired in his schooling and early training in Pamplona. Blending indoor and outdoor public space, this project opens itself to embrace the benign Mediterranean climate.

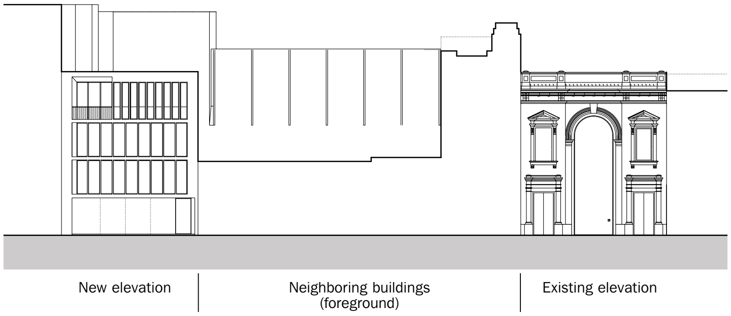
Though the original building lacks precise documentation, De Miguel dates it to the 1920s and '30s, when it served as a local music hall. After Spain's Civil War (1936–39), the place became a cinema and later stood abandoned for 20 years until 1997, when the city of Valencia took it over. The municipality, trying to maintain the structure's cultural presence in this modest neighborhood, initially commissioned De Miguel to rehabilitate El Musical as a theater. But as the architect recalls, he found the interior "completely in ruins," making its conservation with upgrades to current standards "practically impossible." The architect and his client deemed the quality of the existing spaces unremarkable, and given the complete loss of original finishes, decided to retain only the entry elevation, while entirely rebuilding the rest. The city now rents the space to a consortium of local commercial theater producers.

As completed, the 32,000-square-foot building has two facades: the main public entrance through the salvaged elevation's triumphal Neoclassical arch, and the backstage/rehearsal area entrance into De Miguel's new concrete-frame structure. In adapting the old elevation—which stands, just beside a parish church, on a corner the district's main plaza—De Miguel removed a glazed upper-floor balcony and added 32-foot-high wooden doors, turning a narrow passageway into a grand portal.

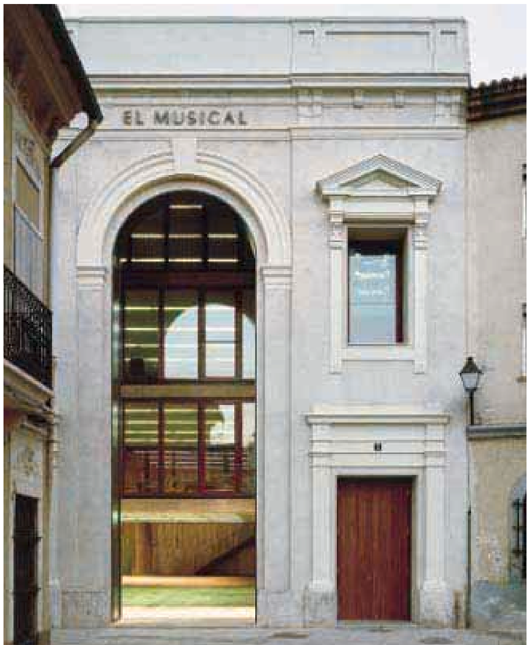
Keeping the original footprint, the building's plan forms a U: The two entry facades connect to an auditorium, set deep in the block behind a row of four small neighboring buildings fronting the street. The main interior sequence leads theatergoers from the entrance under a "bridge" of upper floors into a high foyer, and through a 90-degree turn into the 400-seat auditorium. Offices, reception and meeting rooms, and the café's glazed balcony overlook the foyer. Such secondary spaces occupy four floors, replacing the original building's two high-ceilinged stories. De Miguel treated the foyer, he explains, as a traditional Valencian patio, relying on natural ventilation instead of air-conditioning and covering the extensive skylights with wood slats to filter light and provide shade. Here, a curving plane of slatted wood cascades dramatically from the skylights, covering the underside of the theater's high, raked seating and reaching the floor as a continuous wood bench. The architect countered this formal gesture, which draws visitors toward the auditorium, with an elegant steel stair rising from the back of the foyer to the second floor's café and outdoor terrace.

With a double shell of concrete walls lining the long sides of the theater, De Miguel created interstitial spaces that facilitate ground-level access to the auditorium and allowed him to introduce overhead indirect natural light and acoustically absorbent materials. The layering extends to the back of the foyer, enhancing its sectional complexity.

"Working with space defined by bone rather than skin," De Miguel says, has been a long-term design obsession for him. Throughout El Musical, he exposed the structural walls: textured, board-formed concrete, laboriously cast to incorporate electrical, plumbing, and other mechanical conduits behind the narrow, vertical bands of the formwork.

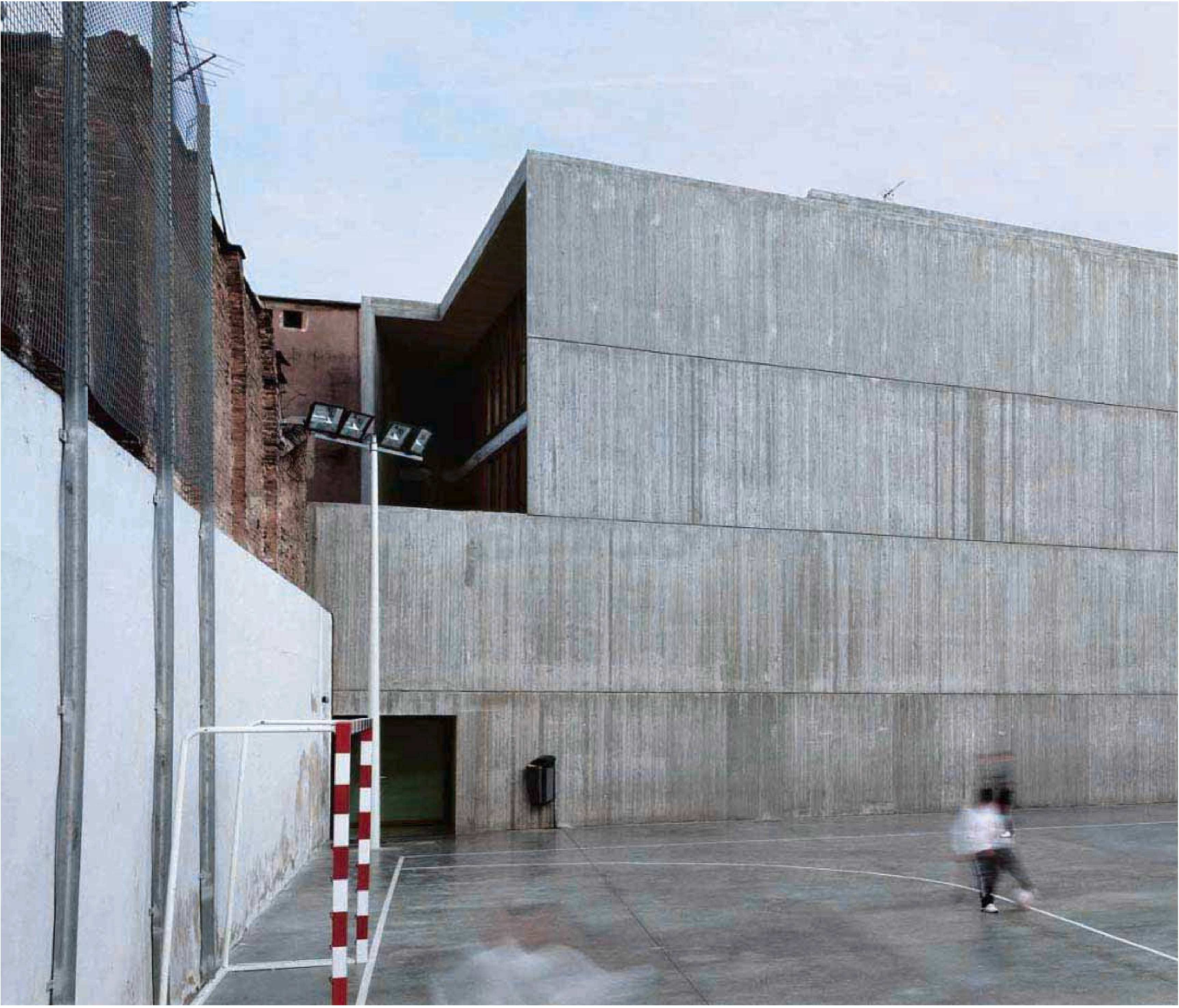


Project: *Teatro El Musical, Valencia*
Architect: *Eduardo de Miguel—Eduardo de Miguel, principal; Arancha Muñoz Criado, David Zaragaza Aznar, Pablo Fuertes Pérez, Antonio Garcia Blay, Rafael Bellver Garcia, project team*
Engineers: *Sondeos, Estructuras y Geotécnia; Consulting de Ingeniería*
Sources
Concrete: *Hormicemex*
Formwork: *Doka*
Reinforcement: *Ros Casares*

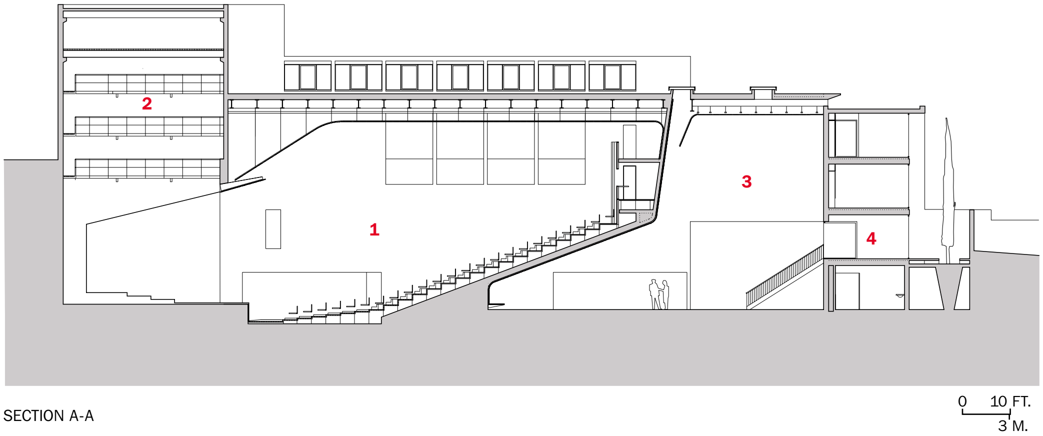


For the new building's main public entry, De Miguel adapted one of El Musical's original facades—the only element the architect was able to salvage.

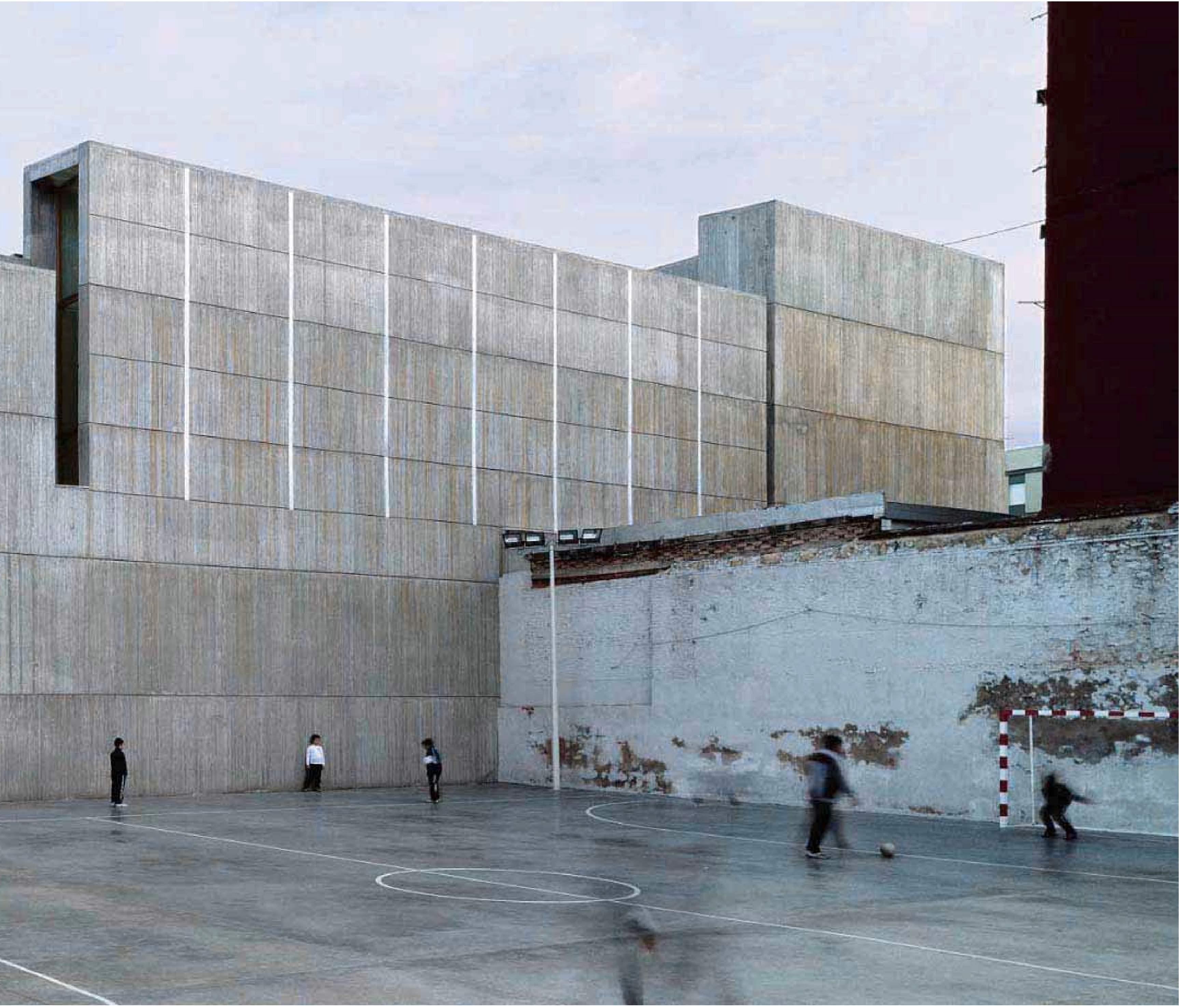
PHOTOGRAPHY: © DUCCIO MALAGAMBA

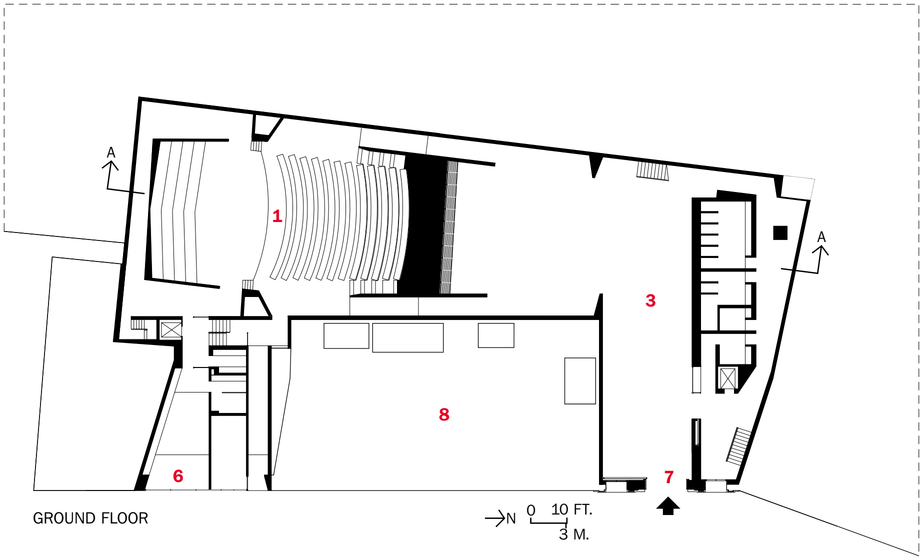


The building's simple but elegantly rhythmic concrete shell—encasing the auditorium—provides a quiet backdrop to the playground of an adjacent property (above).



SECTION A-A

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GROUND FLOOR
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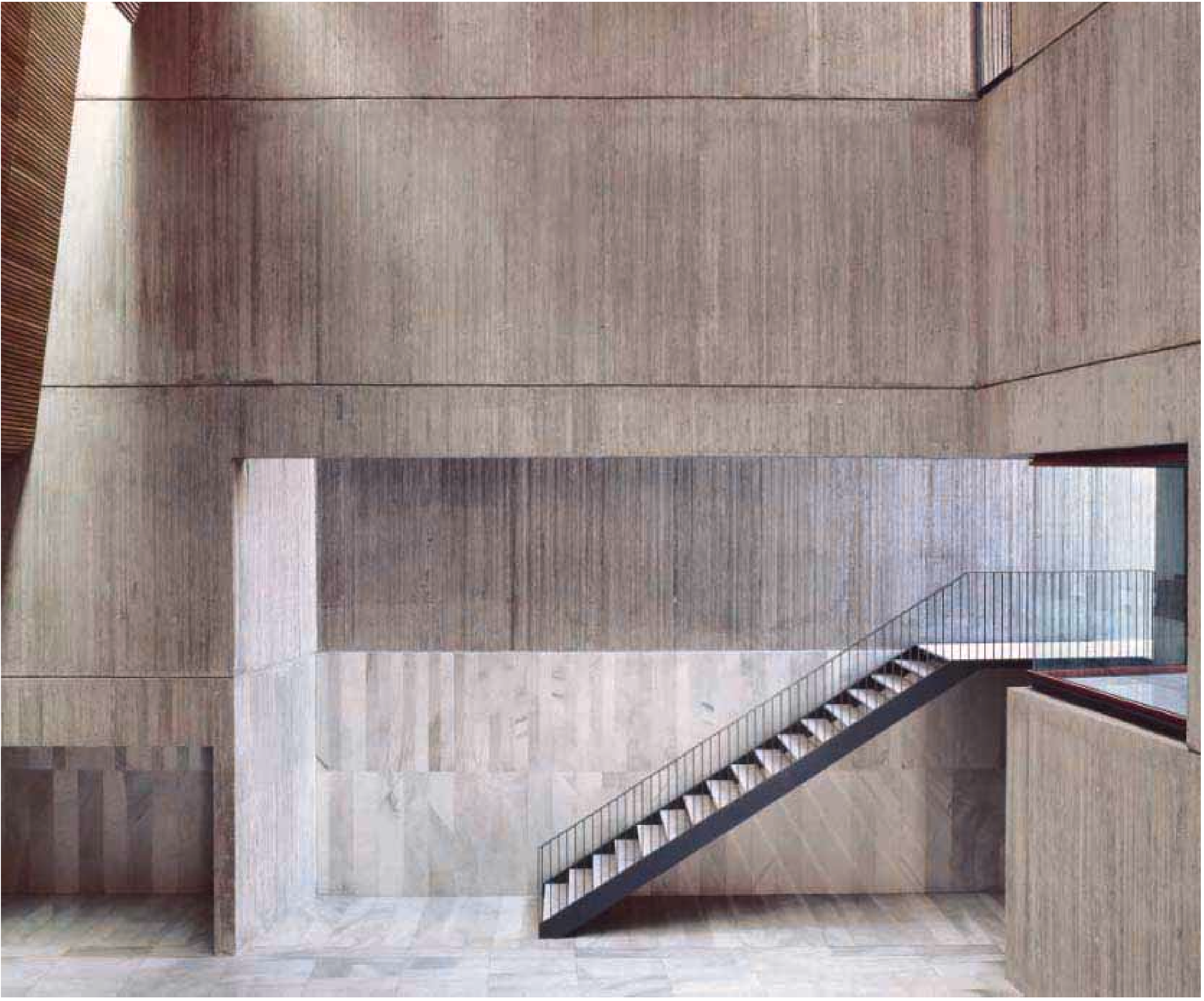
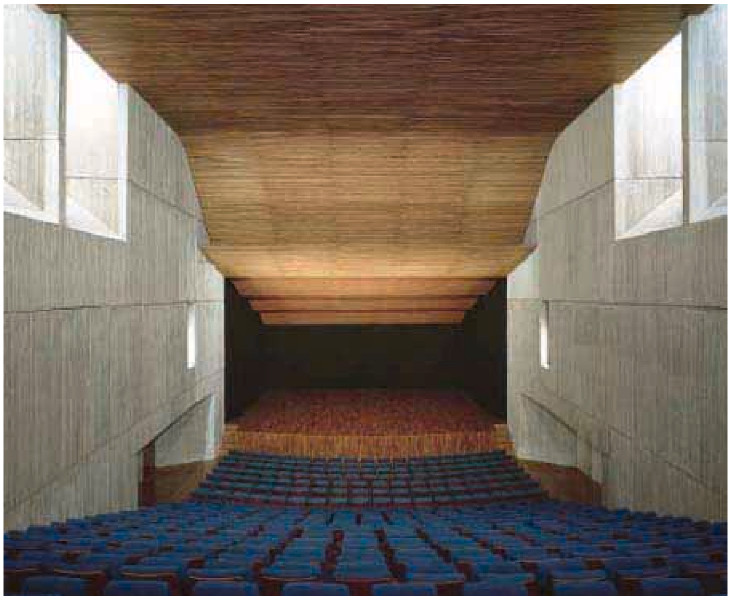
1. *Auditorium*
2. *Fly space*
3. *Lobby*
4. *Café/bar*
5. *Terrace*
6. *Back-of-the-house entry*
7. *Main public entry*
8. *Adjacent buildings*

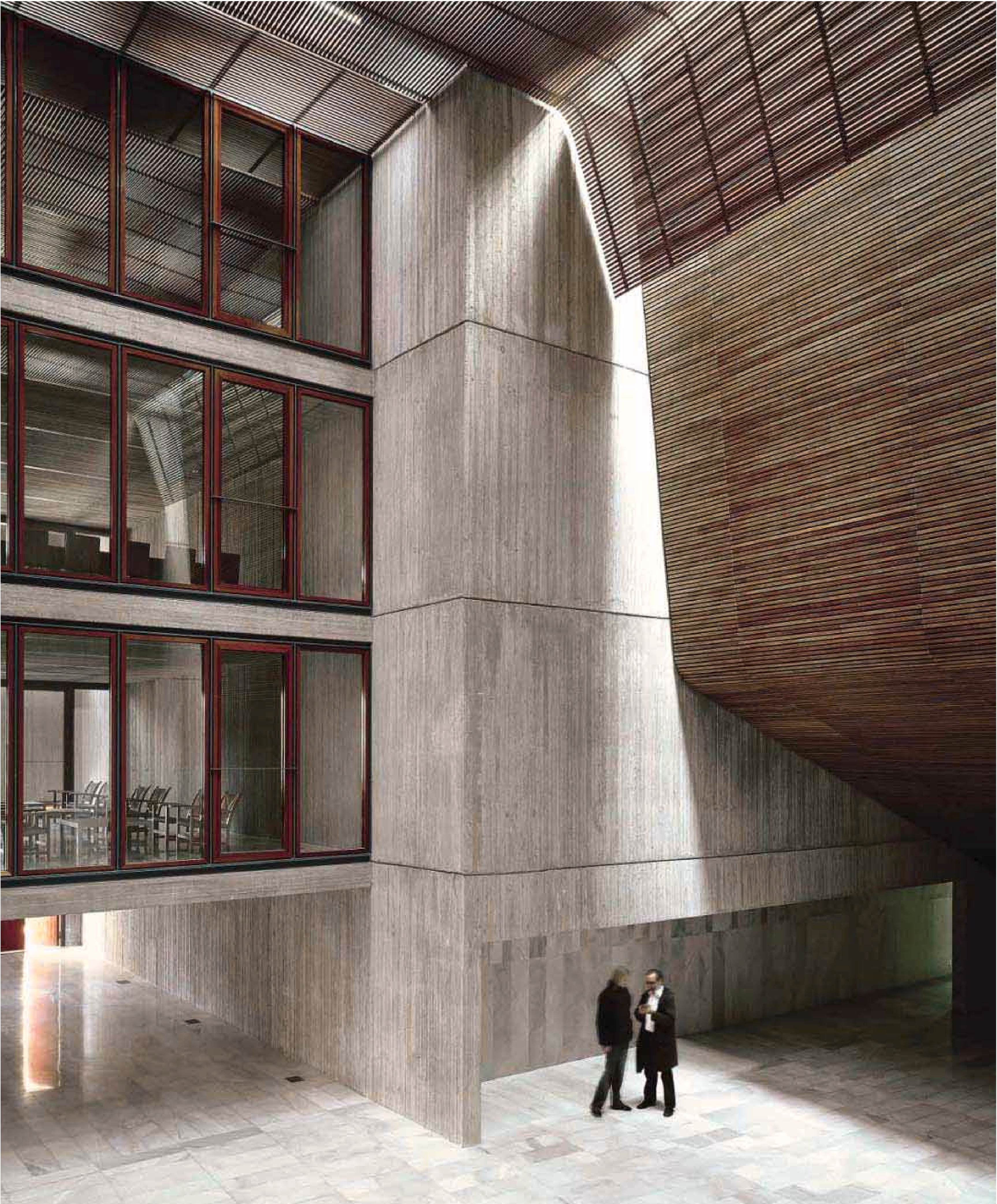


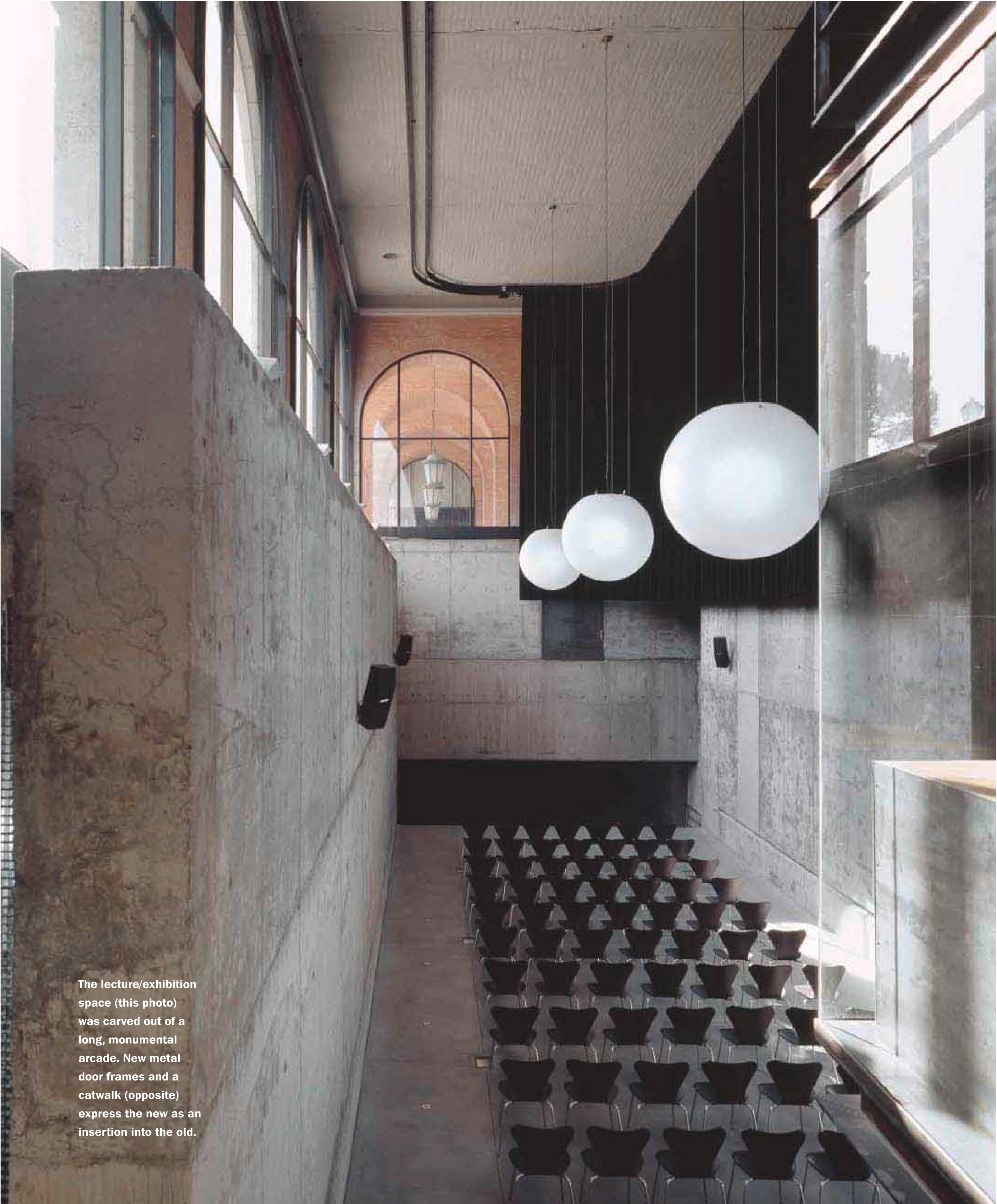
Throughout the interior, the architect played accents of tropical iroko against exposed board-formed concrete—as seen in the auditorium (below) and lobby (opposite). A steel stair (above) rises from the back of the foyer to a café with an outdoor terrace.

Fine-grained marble floors in the public areas accentuate the strong tectonic character of the building's concrete slabs, its bones. Reddish tropical iroko window frames, along with the interior's wood slats—in a fireproof laminate stained to match the iroko—complement the exposed concrete walls' roughness.

De Miguel's other work in Valencia includes an addition to the Palau de la Música Concert Hall, where he created an underground complex of rehearsal rooms and small performance spaces around courtyards and latticed skylights, and the newly completed Cabecera Park, in a dry riverbed. At the Pamplona School of Architecture in the early '80s, he was a near contemporary of Francisco Mangado, designer of Pamplona's Baluarte Congress Hall (see page 78). The formal elegance and restraint of both architects reflects the impact of their teacher, Javier Carvajal, a master of exposed concrete and expressive geometry. The Spanish Modern tradition, little disturbed by the Postmodern revolution of the '70s and '80s, reached De Miguel and many of his contemporaries in a state of sage formal maturity. Unpretentious and refined, such maturity emerges throughout El Musical—particularly in the subtle but pivotal role of the foyer's metal stair, setting the entire space into motion. ■







The lecture/exhibition space (this photo) was carved out of a long, monumental arcade. New metal door frames and a catwalk (opposite) express the new as an insertion into the old.

AN EXHIBITION SPACE by Jesús Aparicio and Héctor Fernández Elorza expresses the possibility that architecture is never finished

By Jorge Otero-Pailos

The exhibition gallery and lecture hall by the Madrid architects Jesús Aparicio and Héctor Fernández Elorza relates contemporary architecture to a historic environment without falling into the worn duality of either imitating or negating the past. Their design methodology frankly accentuates the fact that the existing structure must be transformed to receive the new. This modest alteration expresses both what is added and what is subtracted. By surgical means, it opens the past to current perception and interpretation. It suggests a new rapprochement of historic preservation and contemporary design concerns.

The project extends exhibition space operated by the Ministerio de Obras Públicas y Urbanismo (the Spanish Ministry of Public Works and Urbanism) in Madrid, and is nestled within a monumental arcade that fronts the massive Nuevos Ministerios building of 1933, which was designed by Secundino Zuazo. Aparicio and Fernández Elorza knew they would have to remove some of the Neoclassically styled arcade's masonry fabric to make room for the lecture hall and exhibition space. They decided to leave traces of the removed elements visible as a testament to the necessary process of "unbuilding" the past to accommodate the future.

By happenstance, exploratory probes punctured through the floor revealed a demapped subway-train tunnel. Though the tunnel existed, it was not part of the building's understood history because it had remained invisible. The architects removed the entire floor of the arcade and pared its supporting barrel vault to the imposts, cutting them cleanly but leaving them exposed. This created a new double-height rectangular volume in which the interior plane of the arcade wall continues downward uninterrupted to the floor of the tunnel. The tunnel is now offered in a new relationship to the historic fabric above.

The visitor enters from the street across a new steel catwalk, which offers a vertiginous downward view before it proceeds behind a control booth and cascades down a steel stair to the tunnel level. There one finds a massive extruded U shape in concrete inserted within the old walls, which replaces the lateral bracing once supplied by the vault. The gap between new concrete and old walls contains services.

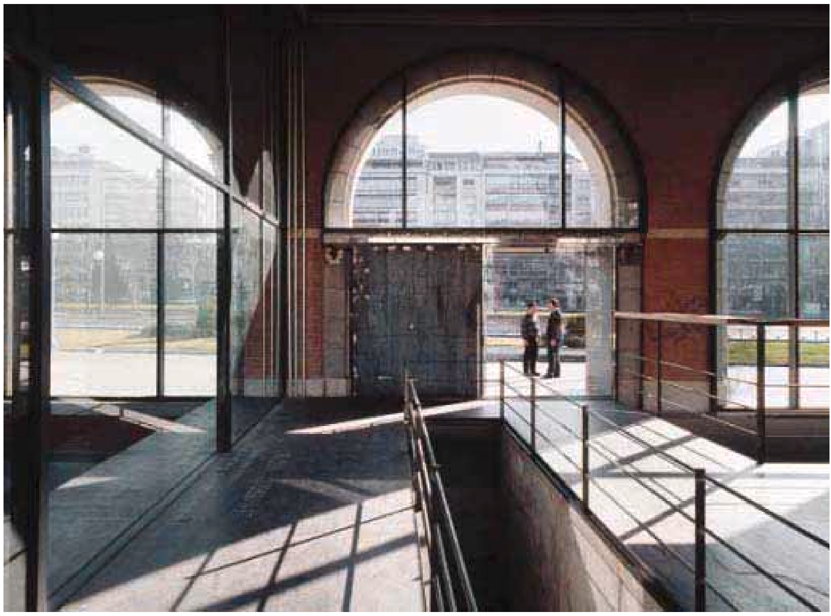
By adding chairs and extending a sound-absorbing drapery around an oval track, the space becomes suitable for lectures. Left open, it can be used for exhibitions. No finishes were applied to either new or old surfaces, no plaster or veneers. As a result, the existing masonry structure's visible subtractions and the contrasting concrete insert share a common aesthetic of incompleteness—neither old nor new, but an intrinsic and unifying aspect of both.

The lecture-hall space has been set to match an entrance to the adjacent rail station. A large lift platform conveys exhibition materials from the tunnel level several feet below (served from the street by a freight elevator) to the lecture-hall level. (Portable stairs may also be set in place.) Otherwise the end of the U remains open at the front of the hall (not, it seems, a code violation, as it would be in the U.S.), making explicit its nature as a new insertion. The long tunnel space, used now for exhibitions, may eventually house archives. Its deteriorated finish was removed, but not replaced, so the marks of power hammers texture its surface. A metal stair, suspended from steel rods, returns visitors to an older exhibition space above.

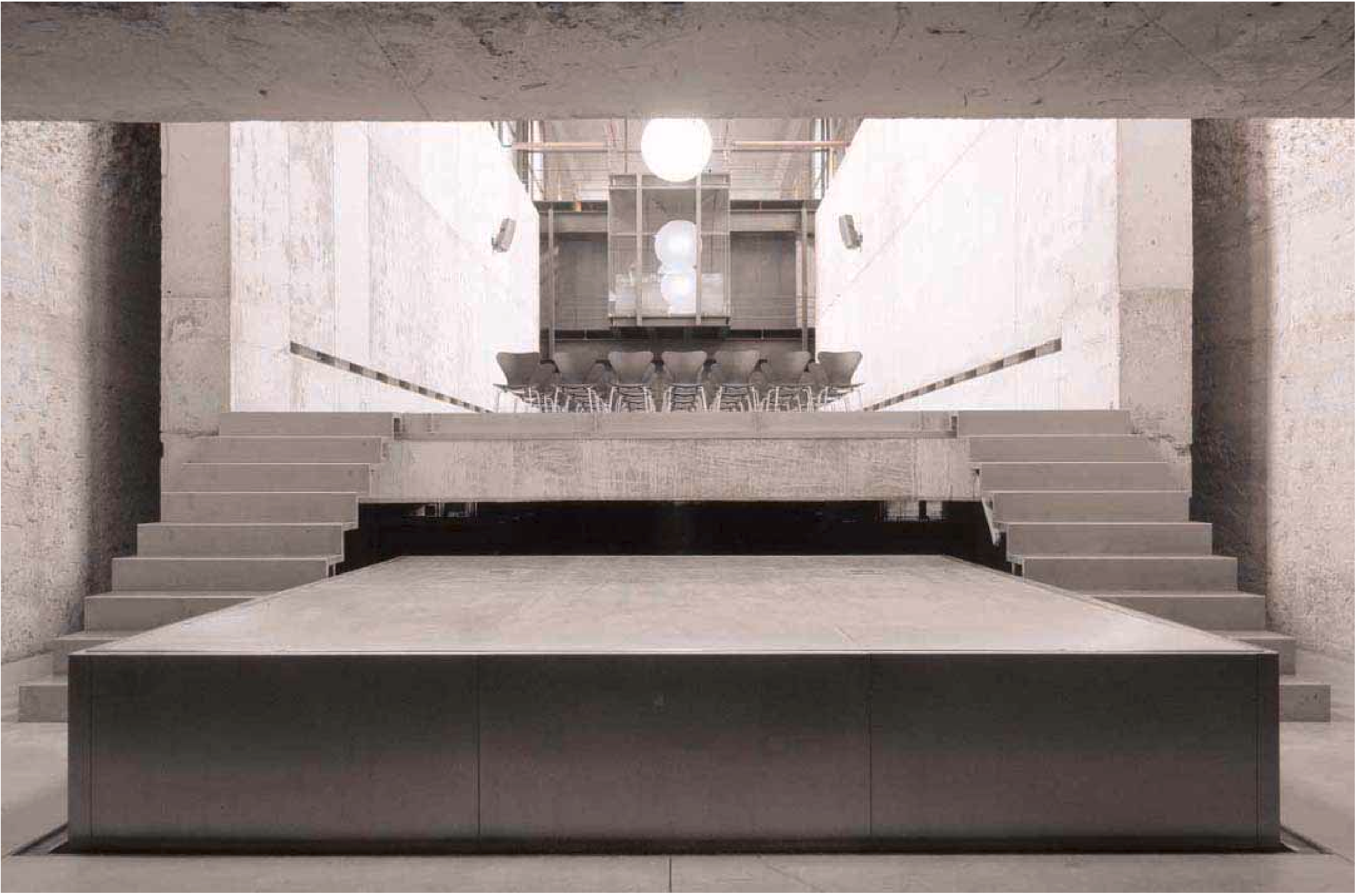
Aparicio and Fernández Elorza's gesture involves the visitor in the process of creating new relationships and building mental associations. As in the best historic preservation, its aesthetic *is* its design methodology, a process of keeping the old open for interpretation through careful transformation, and of holding out the possibility that architecture is never finished, indeed cannot be finished. ■

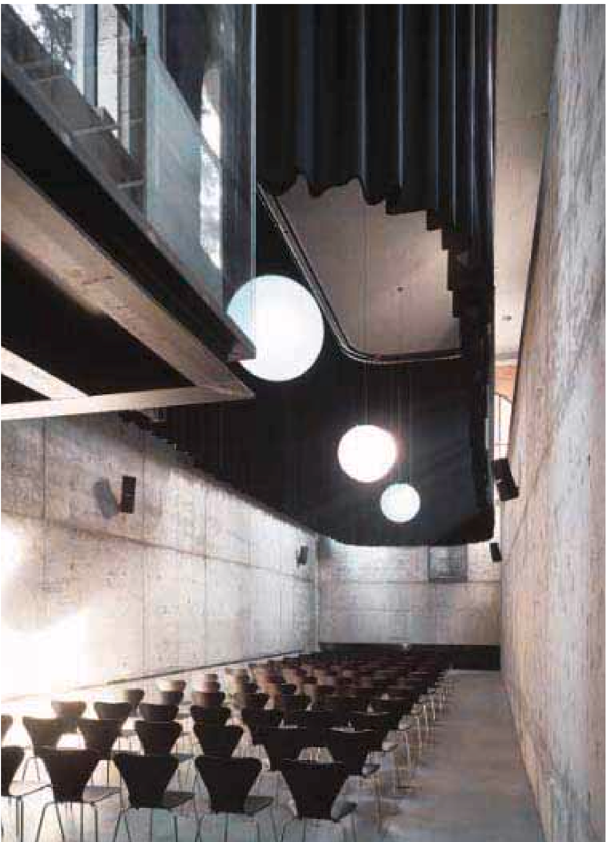
Jorge Otero-Pailos is professor of historic preservation at Columbia University.

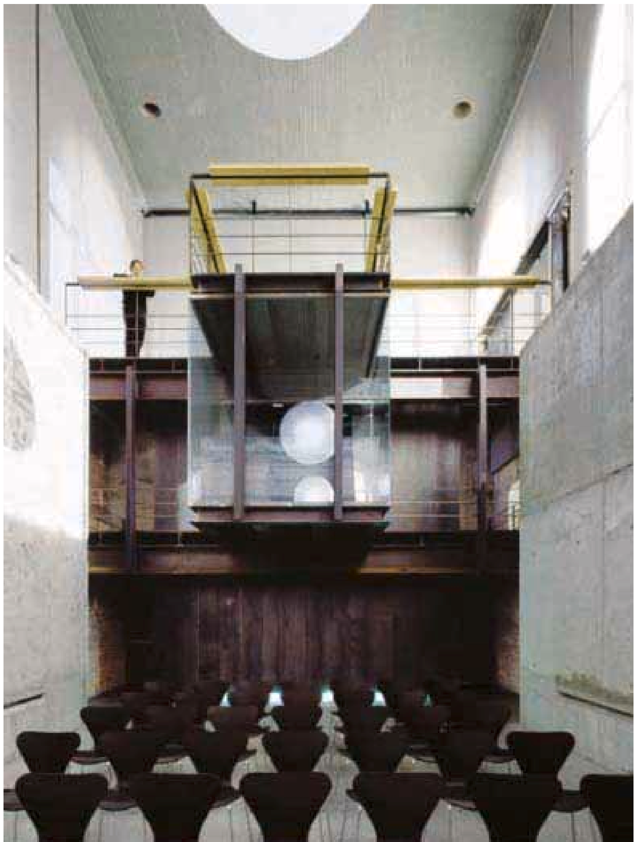
Project: *Archive and exhibition space at the arcade of the Nuevos Ministerios, Madrid*
Architect: *Jesús Aparicio and Héctor Fernández Elorza*
Technical architect: *Joaquín Goyenechea*
Engineers: *AEPO Ingenieros (structural); AGM Técnicos e Ingenieros de Proyectos (services)*
Contractor: *DRACE - Construcciones Especiales y Dragados*



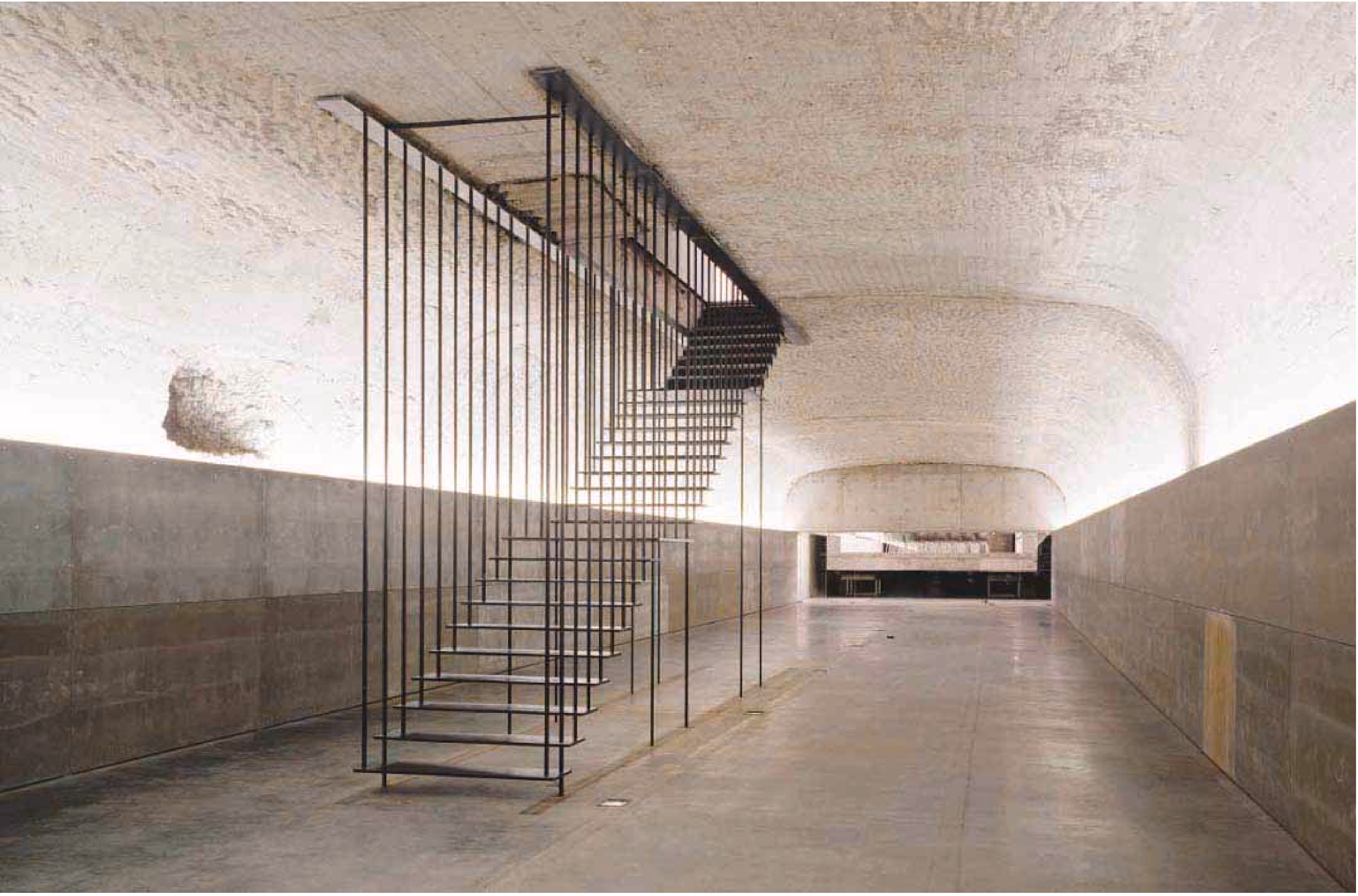
PHOTOGRAPHY: © ROLAND HALBE

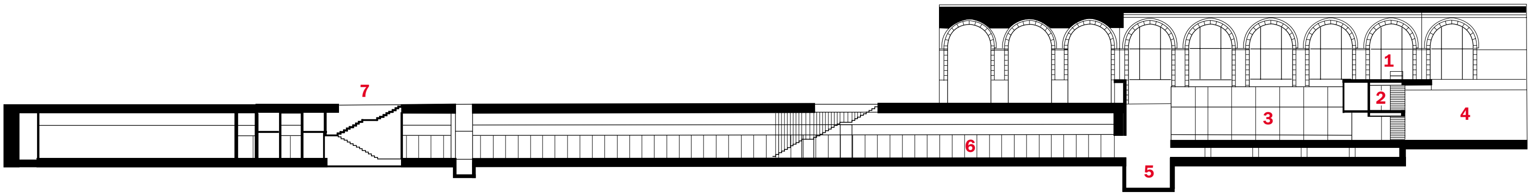




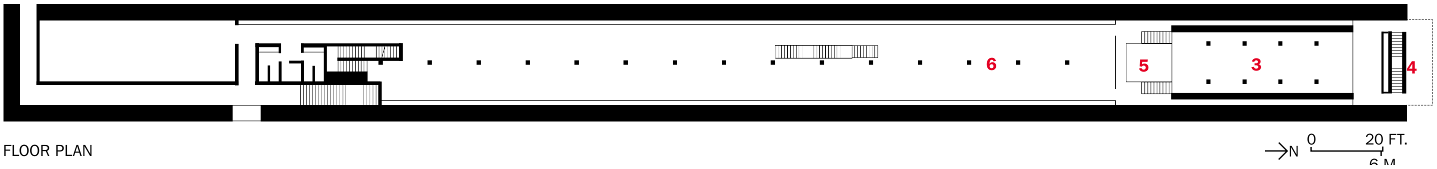


Steel beams support an access catwalk and projection booth (near left). Drapes cut light and improve acoustics (far left). Portable stairs and a lectern lift (above) reconcile the offset levels. In the long archive space (opposite), a deep beam supports the arcade above; concrete walls conceal services.





SECTION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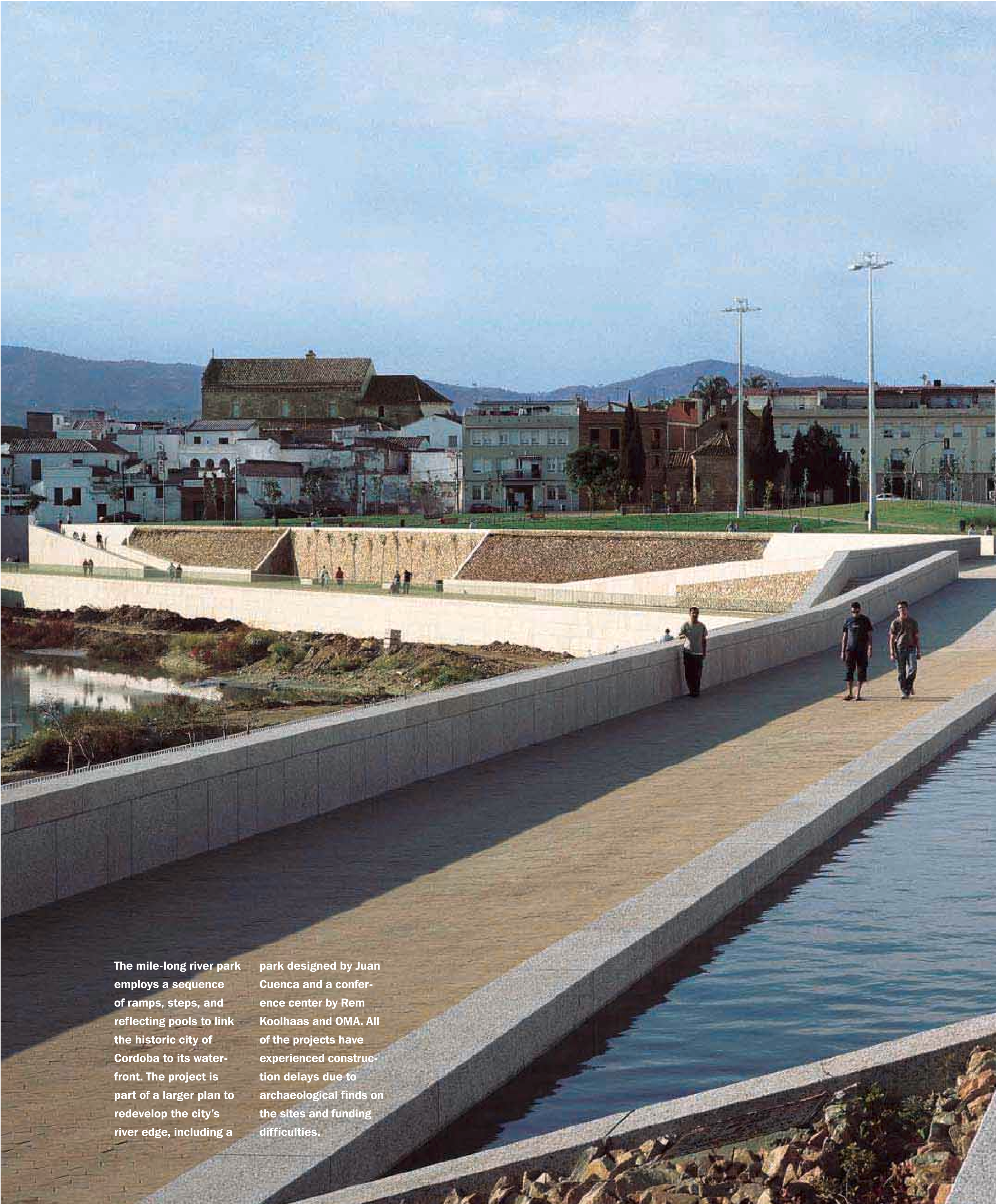
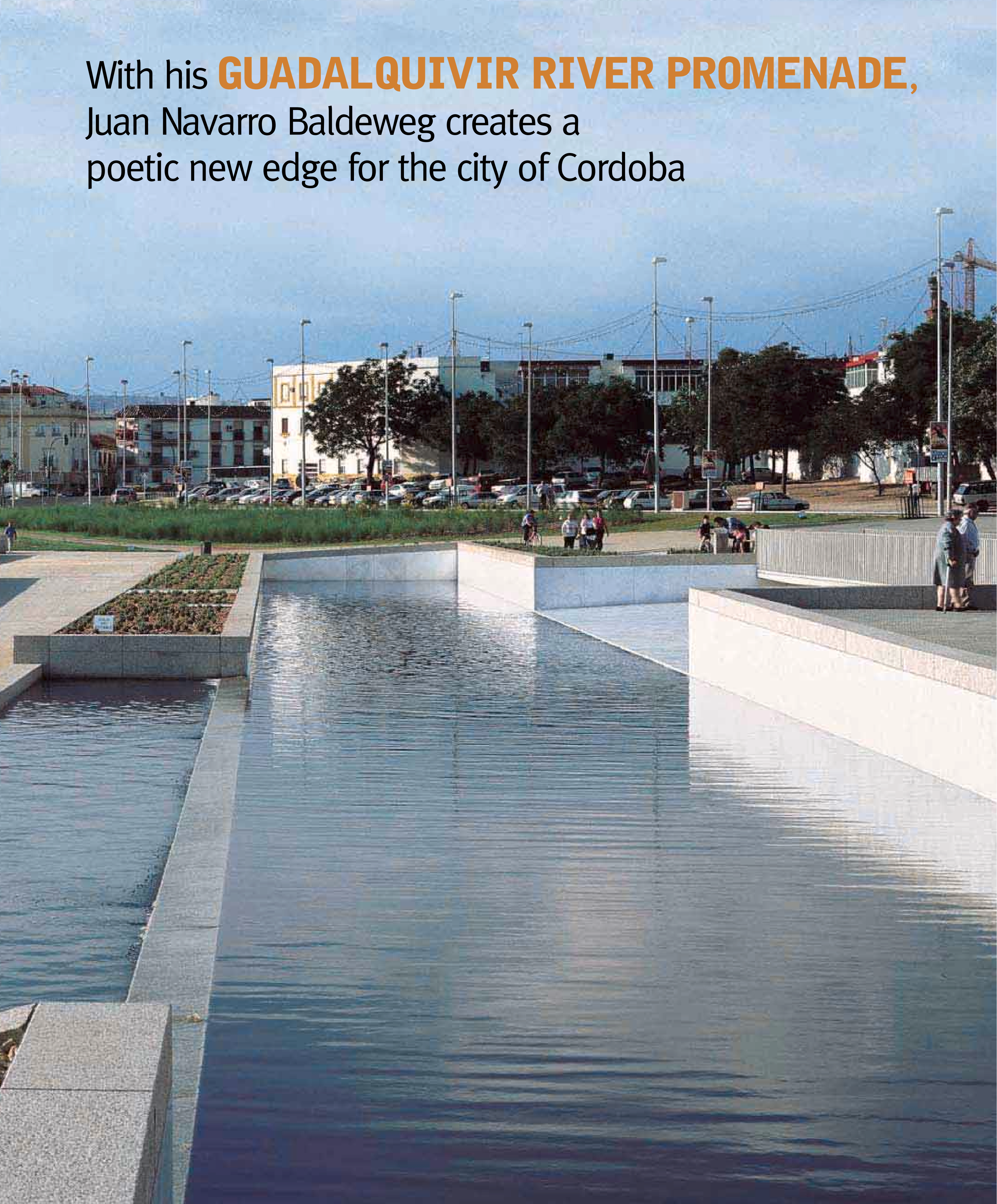
FLOOR PLAN

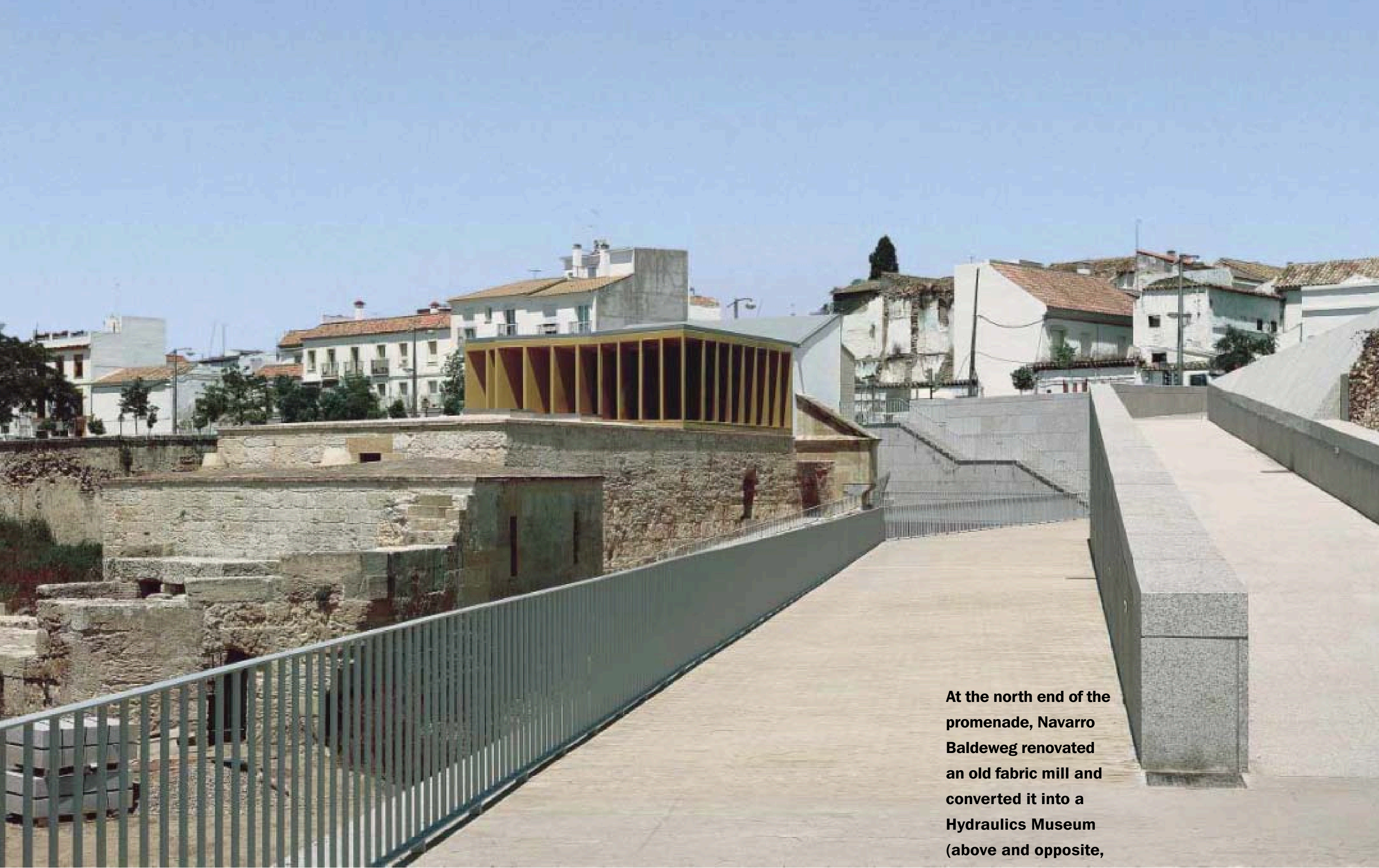
1. *Entry*
2. *Control booth*
3. *Lecture/exhibition*
4. *Existing rail station*
5. *Lectern/lift*
6. *Exhibit/archive*
7. *Existing exhibit*



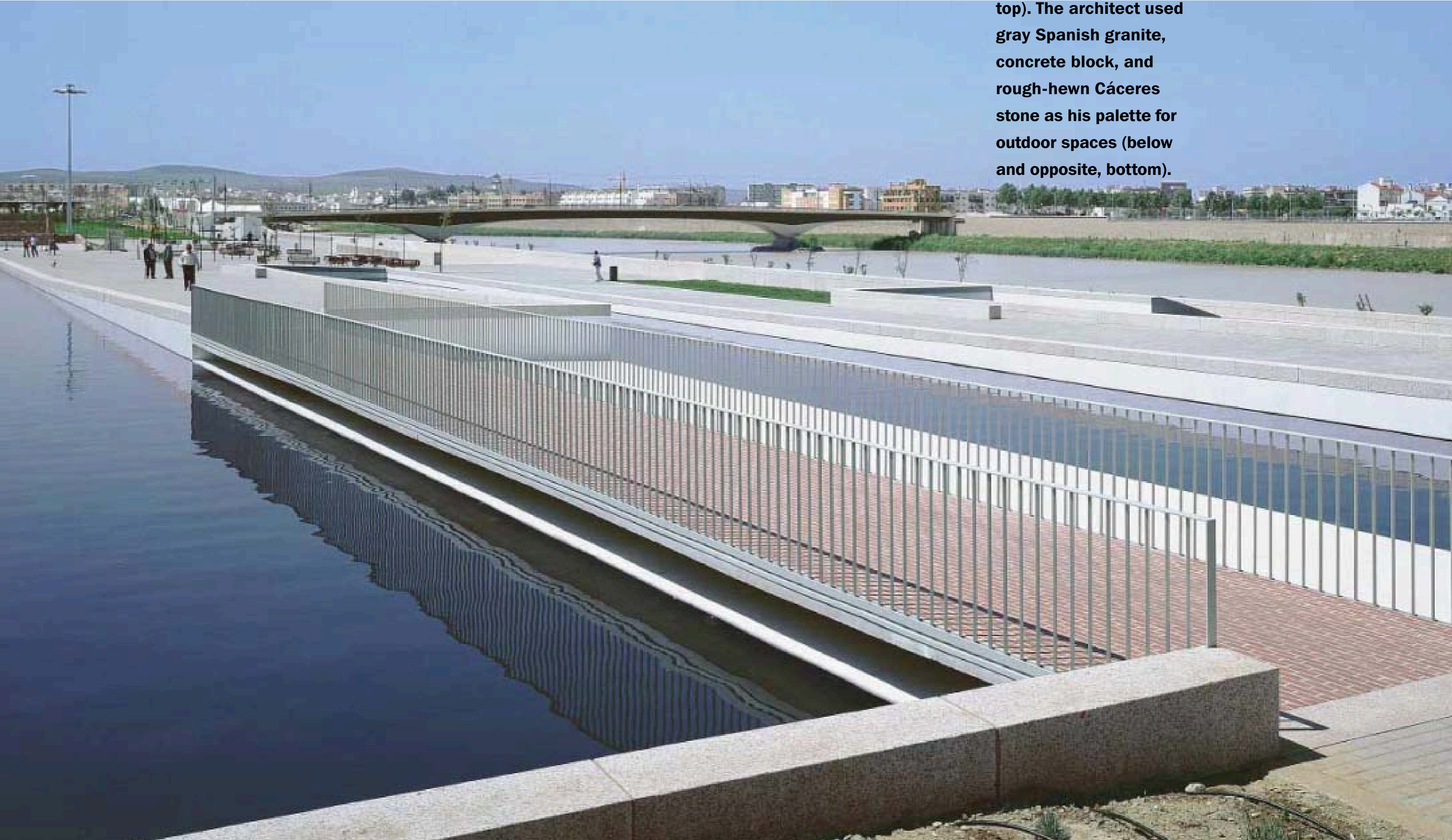
The mile-long river park employs a sequence of ramps, steps, and reflecting pools to link the historic city of Cordoba to its waterfront. The project is part of a larger plan to redevelop the city's river edge, including a park designed by Juan Cuenca and a conference center by Rem Koolhaas and OMA. All of the projects have experienced construction delays due to archaeological finds on the sites and funding difficulties.

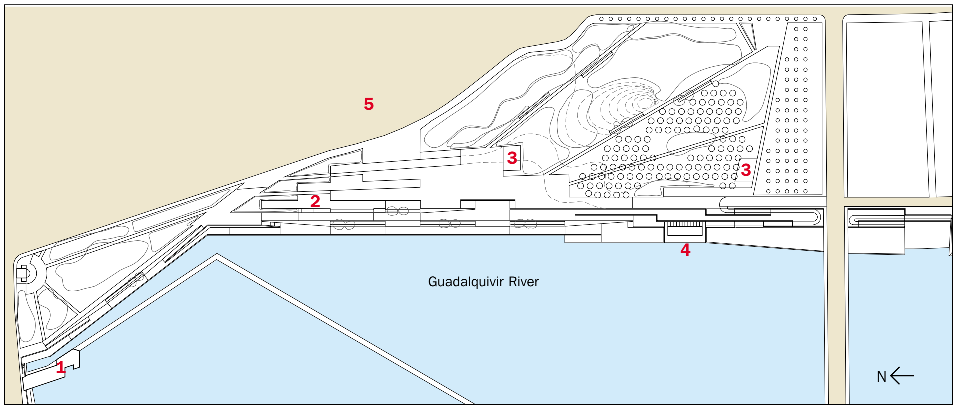
With his **GUADALQUIVIR RIVER PROMENADE,** Juan Navarro Baldeweg creates a poetic new edge for the city of Cordoba





At the north end of the promenade, Navarro Baldeweg renovated an old fabric mill and converted it into a Hydraulics Museum (above and opposite, top). The architect used gray Spanish granite, concrete block, and rough-hewn Cáceres stone as his palette for outdoor spaces (below and opposite, bottom).





1. *Mill/Hydraulics Museum*
2. *Water sheets*
3. *Cafeteria*
4. *Boathouse*
5. *Shopping mall*

By Amanda Schachter

Juan Navarro Baldeweg's nearly completed Guadalquivir River Promenade draws a new picture plane across Cordoba, reorienting and vitalizing the main axes of the provincial Andalusian capital. Extending from the Paseo de la Ribera in the town center to the fairgrounds at the city's southern edge, the promenade follows the Guadalquivir for a mile as it wends south and looks back at the city's layered skyline punctuated by the domes of the Caliph's Alcazar, church spires, and the Catholic bell tower atop the former Great Mosque.

The promenade is anchored at one end by Navarro Baldeweg's renovation and conversion of the Molino de Martos fabric mill into a Hydraulics Museum. From an exhibition room at street level, visitors can look down through two truncated pyramidal-glass skylights into the stone sluices and 16th-century hydraulic machinery in the mill below. A staccato series of slender windows in the exhibition room regulate views of the city's panorama and receding hills.

From the museum, a scissoring sequence of ramped walkways, stairs, niches, and pools flank the river below, finally reaching a boathouse, also designed by Navarro Baldeweg, at the other end of the site. Nestled into the rising riverbank at the project's lowest point, the boathouse is an open concrete shed connected to the water by a gray granite launch and protected by a large, 40-by-80-foot cantilevered aluminum canopy.

Named a World Heritage Site in 1984 by UNESCO, Cordoba has become one of Spain's chief tourist destinations, with its center predominantly a hub for hotels and souvenir shops. Meanwhile, the native Cordobeses have spread progressively south to more workaday housing complexes and commercial centers. Navarro Baldeweg's promenade acknowledges this line of movement while at the same time reaffirming the value of the river by providing privileged vantage points to the historic city. It also acts visually as a plinth for a gargantuan shopping mall on its cityside, even as it gracefully secludes itself on its riverside.

The promenade, already a popular afternoon destination for locals, is part of a larger effort by the municipal government to clean up the waterway and contract architects of local and international renown to design its edges. Yet architectural rehabilitation in a historic city has turned out to be more costly and complicated than first imagined. Navarro Baldeweg's promenade is now reaching completion after being stalled several years by the city and later requiring modifications to incorporate an ancient river wall discovered during excavation. Other projects have encountered even bigger problems. Facing Navarro Baldeweg's project across a bend in the river, a park designed by Juan Cuenca was left partially incomplete after workmen found the foundations of a buried medieval settlement; the work cannot continue until the city allocates more funds. Rem Koolhaas's design for a conference center, called the Palacio del Sur, which might solidify all the new design efforts on this stretch of the Guadalquivir, is also on hold.

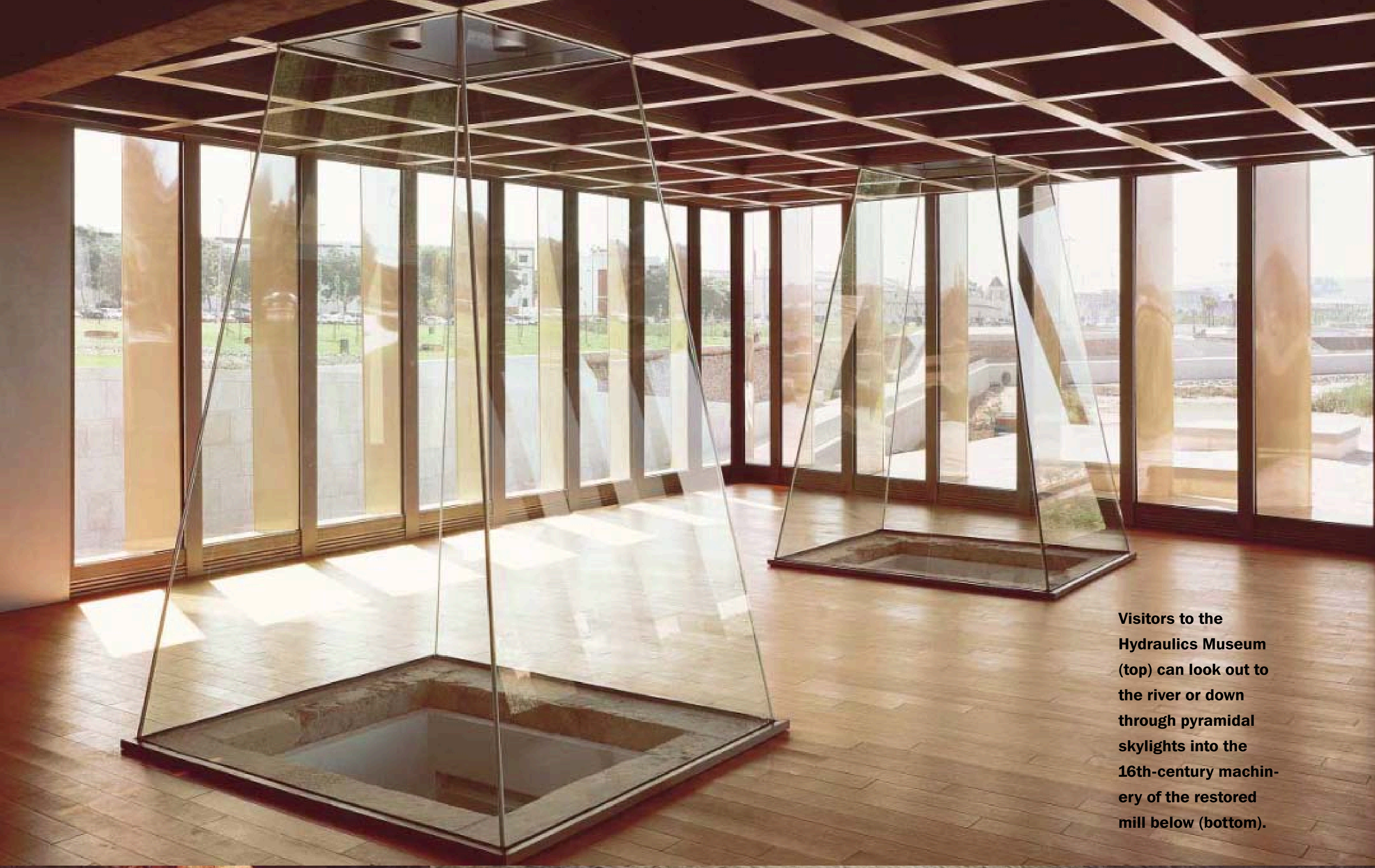
Navarro Baldeweg's promenade—meandering along the river, across a decade of design and centuries of history—can be seen as a timeline of his own explorations as painter and architect, as well as a barometer of the city's aspirations. Set between museum and boathouse, it is a canvas for a series of perceptual illusions that celebrate and abstract the river's presence within the urban landscape. Navarro Baldeweg often says that the making of art and architecture is the seizing of a single fleeting moment, the hand stopping nature's progress for an instant to make it visible to the eye. Just as painting can collapse a situation by compressing it in time and space, the Guadalquivir's ever-changing course is transformed into a series of idealized horizontal and vertical frames. Set above the river's seasonal ebb and flow, the promenade makes its way to and from the street, lifting and lowering water through a terraced sequence of three long, narrow pools. The pools empty into one another, their water flowing over black African granite and white Greek marble, echoing the passage of the river itself.

In this project, Navarro Baldeweg traces a new line through Cordoba and wedges it with space for contemplation. By doing so, he flattens and mutes the historic city, now in full growth and transformation, drawing it across river and horizon through the manipulation of material and light. ■

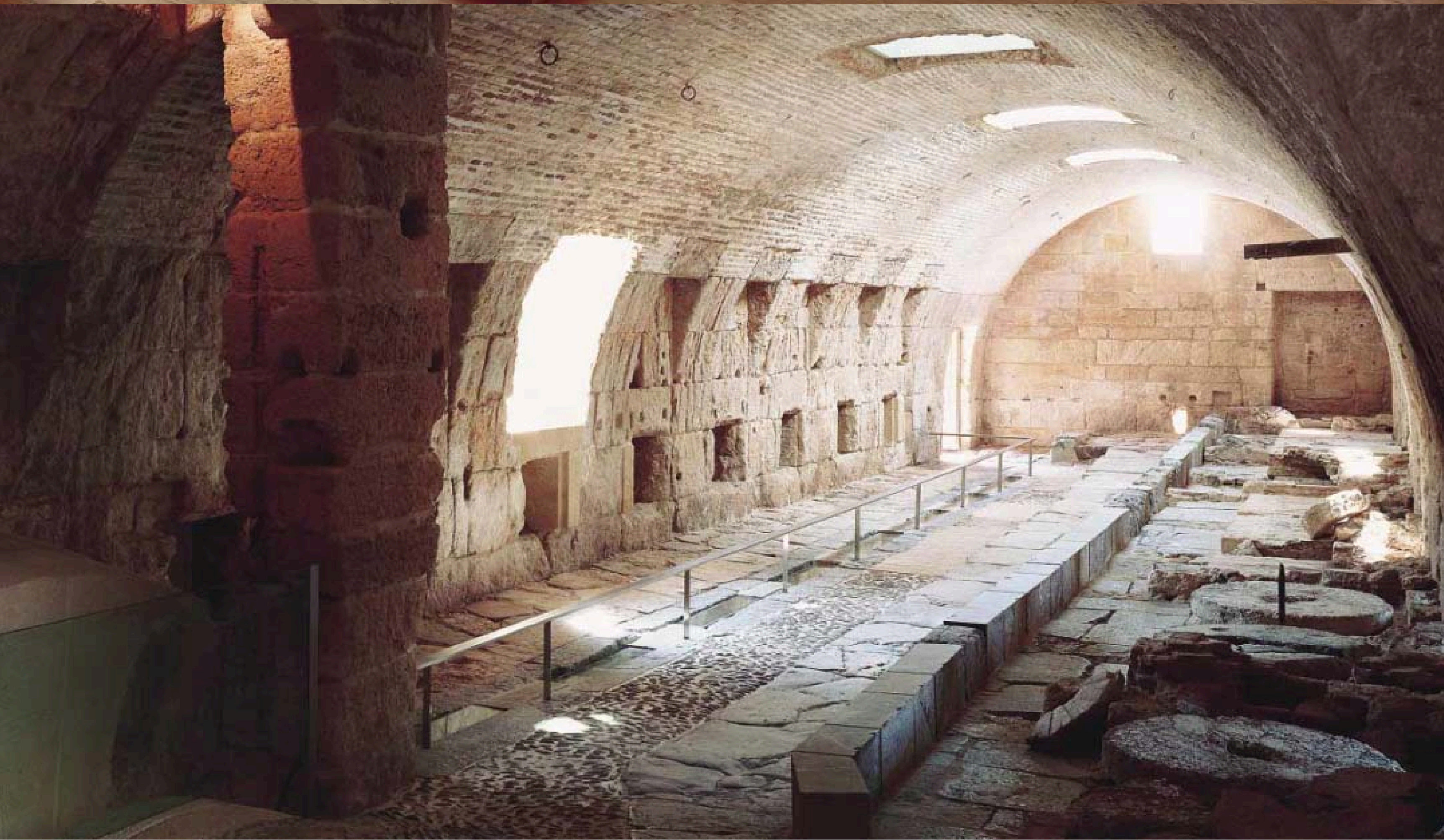
Amanda Schachter runs a design studio in Madrid and teaches in Barcelona.

Project: *Guadalquivir River Promenade and Restoration of Martos Mill, Cordoba*
Architect: *Juan Navarro Baldeweg—Juan Navarro Baldeweg, principal; Fernando Pino, Marcello Maugeri, collaborators*
Consultants: *PRINA (structural); ARGU (installations)*
General contractors: *FCC (promenade); Nesco y Fryssinet (mill)*
Sources:
Gray Spanish granite: *Grabasa Granitos de Badajoz*
Klinker ceramic blocks: *Cerámica Malpesa*
Concrete blocks: *Vanguard*

PHOTOGRAPHY: © DUCCIO MALAGAMBA



Visitors to the Hydraulics Museum (top) can look out to the river or down through pyramidal skylights into the 16th-century machinery of the restored mill below (bottom).



The JEREZ CITY PLANNING OFFICES by Antonio Martínez García & Juan Luis Trillo de Leyva transform an old convent in Andalucia

By Alexander Levi

Using the 17th-century fabric of a building that began as a convent and later acquired a more disturbing function, the Seville-based architects Antonio Martínez García and Juan Luis Trillo de Leyva have brought together disparate voices from Jerez's cultural memory to create a poetic setting for offices of the city's departments of planning and property management.

Although built as the Convent of the Order of Saint Augustine, the complex became a base for the Civil Guard, which during the Franco era was a feared instrument of oppression. For much of the 20th century, the compound included detainment cells, offices, and barracks for the guardsmen and their families, and became a symbol of Franco's efforts to "maintain order" over Andalucia's Gypsy majority. Indeed, many local residents do not remember that the building, which sits across the street from Jerez's Moorish Alcazar, was ever home to a religious order. One of the great challenges facing Martínez García and Trillo was how to deal with the conflicting and often menacing historical memory embedded in the buildings.

After more than a decade of preservation and adaptation, the group of buildings opened to the public at the end of 2004. The convent's novice cloister and what was once the Civil Guard captain's house provide the base for Martínez García and Trillo's new architecture, unified on the exterior with a wash of white paint. Visitors access the complex off a small street, walk past the once-feared three-story captain's residence, then enter through a wood-framed weather box inserted into the taut, white-stucco facade of the convent. Inside, Martínez García and Trillo reinstated and transformed elements of the original convent, while adding a wholly contemporary administrative space above. The captain's house now serves as offices for the city's planning department, while the ground floor of the novice cloister accommodates an exhibition area and space for the government's property-management functions. More offices occupy the new floors above the cloister and in the captain's house, whose roof offers a lookout to the Alcazar across the street and the nearby cathedral.

The most important transformation involved adding a smooth concrete cap above the novice cloister, a colonnaded space that had originally been open to the sky but later was covered with glass and subdivided by the Civil Guard. Martínez García and Trillo have created a hushed, darkened exhibition and reception space inspired by Moorish baths and punctuated by three troughlike openings that bring daylight into the building's cool, dark heart. One of these openings admits bright and direct light through a short, narrow slot cut perpendicular into the flat cap above the cubic space. The other two openings draw daylight down through gray baffles on the top floor and reflect it off white walls and large panes of glass.

To allow each floor to have a very different plan configuration around the cloister, the architects designed a structural system of load-transmitting, reinforced-concrete walls and thickened floor slabs, interspersed with the occasional exposed-stainless-steel column. Off to one side of the cloister, a flight of white marble stairs leads to the first of three office floors. Halfway up, the marble stairs change to smooth, warm wood, inserted into the exposed-concrete, glass, and steel envelope like a winding piece of furniture. The architects designed the offices with a free plan, tucking all wiring and mechanical systems into a raised floor. To keep the space as open as possible, they used 9-foot-high counterweighted wood doors that rotate effortlessly without frames or hardware, and created internal staircases that double as bookshelves. As a result, employees enjoy unobstructed views through the work space as well as oblique views into the cloister below.

During the project's design phase, Martínez García and Trillo discovered an old statue of Saint Augustine. The architects left the sandstone saint in his long-eroded state and set him on a reinforced-concrete perch in a niche at one end of the second light well over the transformed cloister. Visitors now can confront Saint Augustine eye to eye as they reach the top of the wood stair within the open office space.

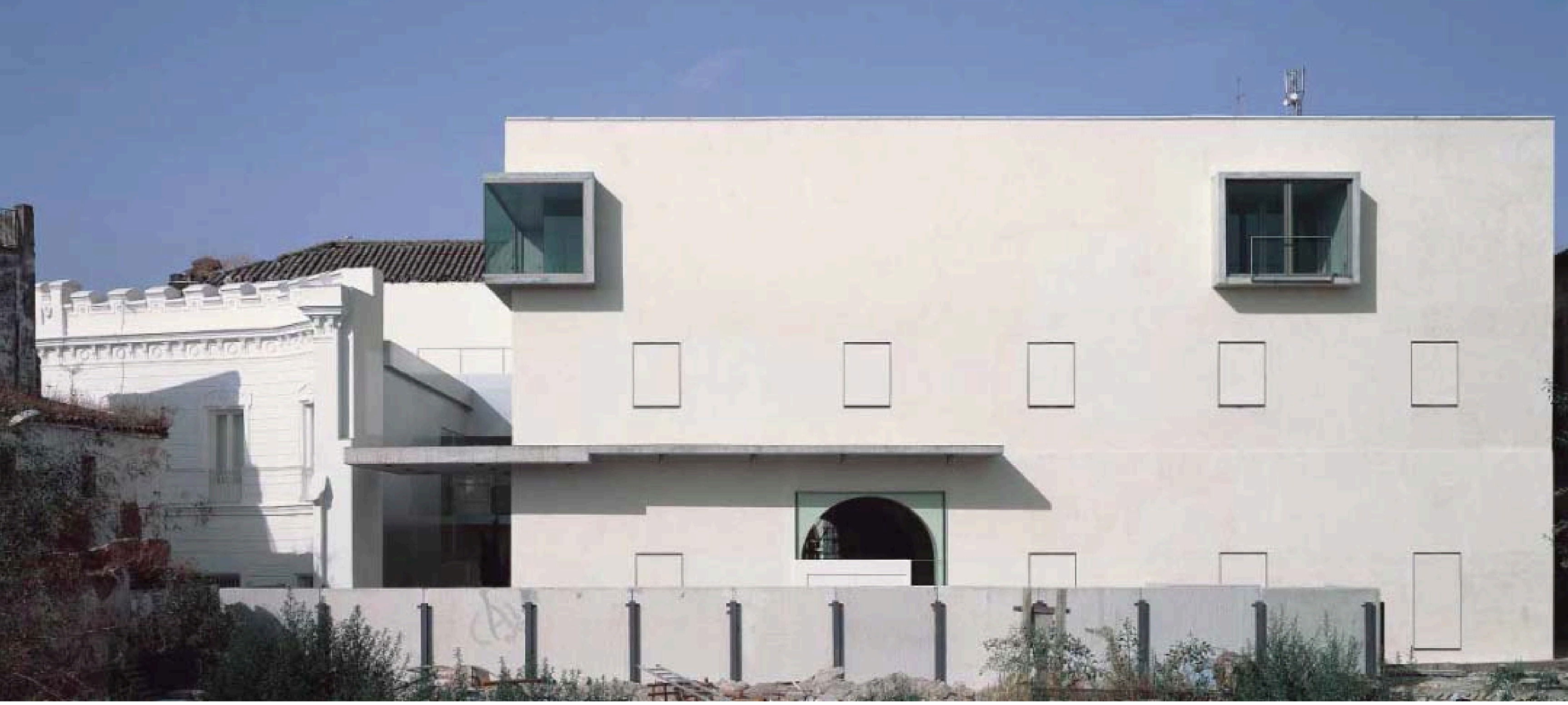
Along one side of the old cloister vestibule, set outdoors behind glass walls, Martínez García and Trillo inserted what they call a "black-water pool," a shimmering, introspective element. In one corner of the pool, a sculpture made of the core samples taken from the 12 restored cloister columns rises through the plane of water.

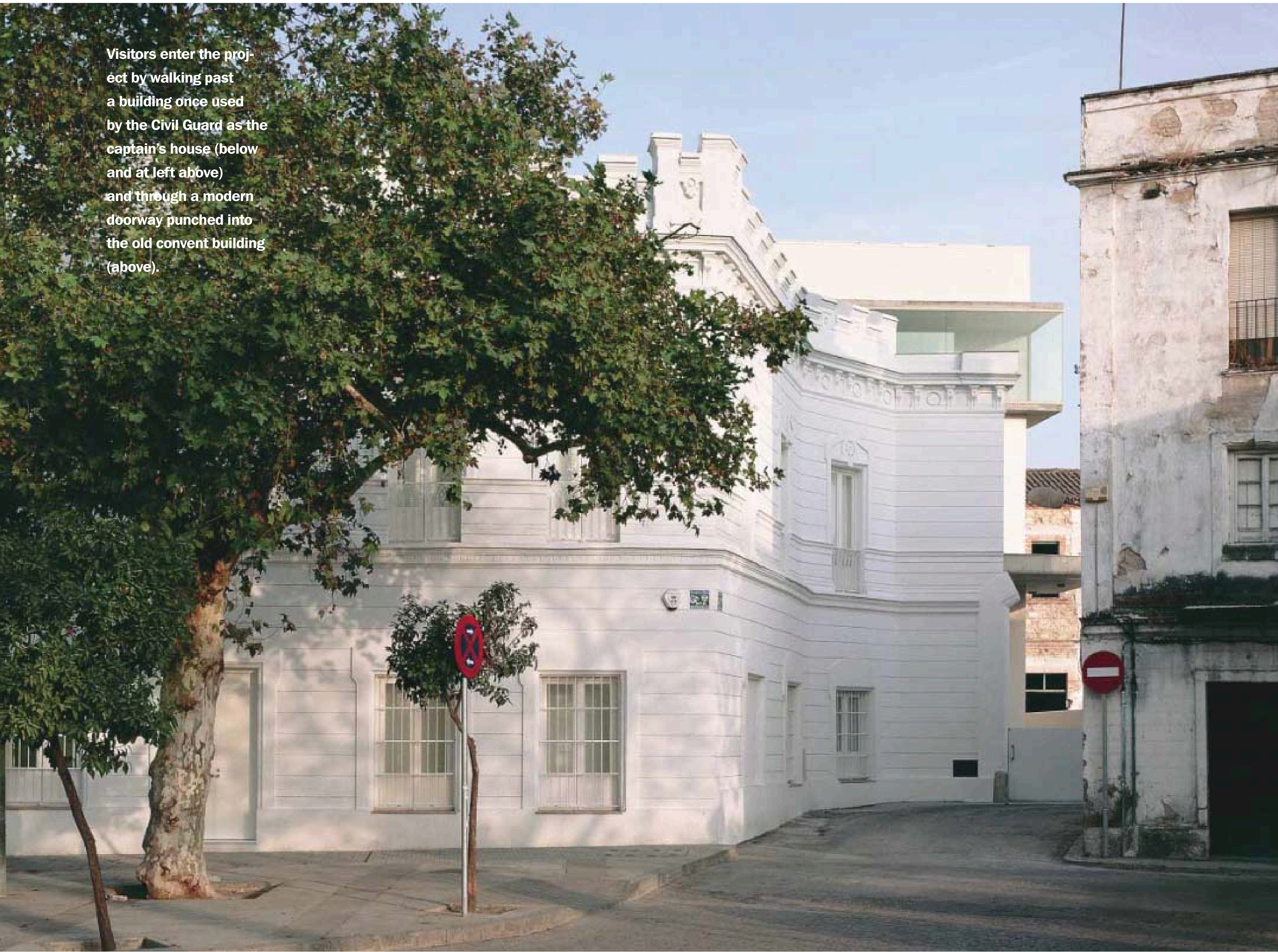
An anticipated second phase also designed by Martínez García and Trillo will incorporate the convent's larger main cloister and onetime stables. When this work is completed, the mayor hopes to have all of the city's property-management and city-planning functions under one roof. From the current entrance, one can follow the main axis of the convent through the novice cloister to the ruined main cloister beyond and imagine how the architects will connect the heavy 17th-century architecture to weightless new spaces. ■

Alexander Levi practices architecture in Madrid and teaches in Barcelona.

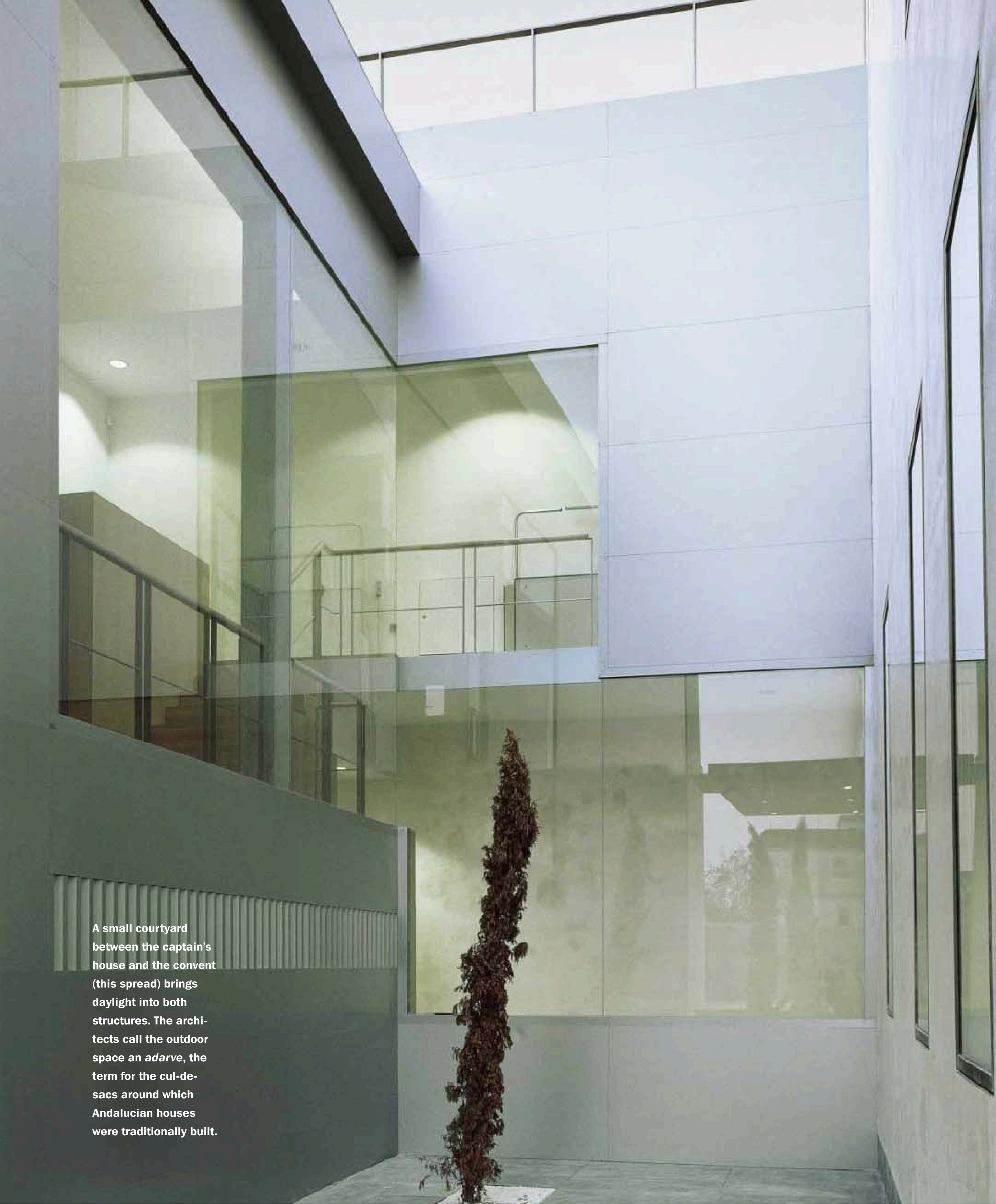
Project: *Jerez City Planning Offices, Jerez*
Architect: *Antonio Martínez-García & Juan Luis Trillo de Leyva—Antonio Martínez García, Juan Luis Trillo de Leyva, principals; Verónica Sancho Arteaga, José Luis Páez Gordillo, Ángel Martínez García-Posada, José A. Alba Dorado, José Luis Domínguez, Luis del Rosal, project team*
Structural engineer: *Ricardo Massón*
General contractor: *Freyssinet*

PHOTOGRAPHY: © DUCCIO MALAGAMBA

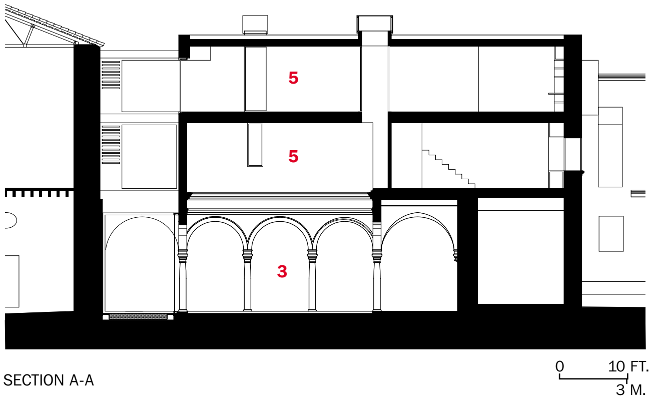




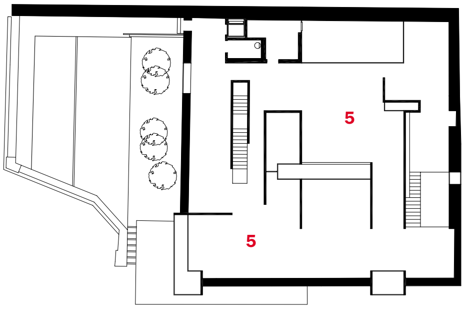
Visitors enter the project by walking past a building once used by the Civil Guard as the captain's house (below and at left above) and through a modern doorway punched into the old convent building (above).



A small courtyard between the captain's house and the convent (this spread) brings daylight into both structures. The architects call the outdoor space an *adarve*, the term for the cul-de-sacs around which Andalucian houses were traditionally built.

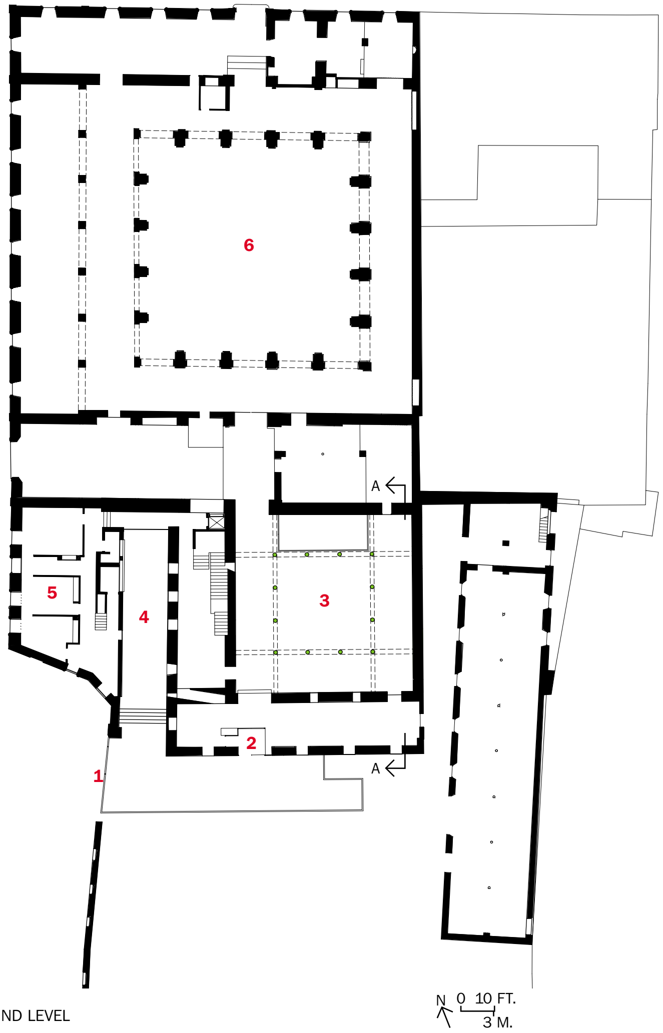


SECTION A-A



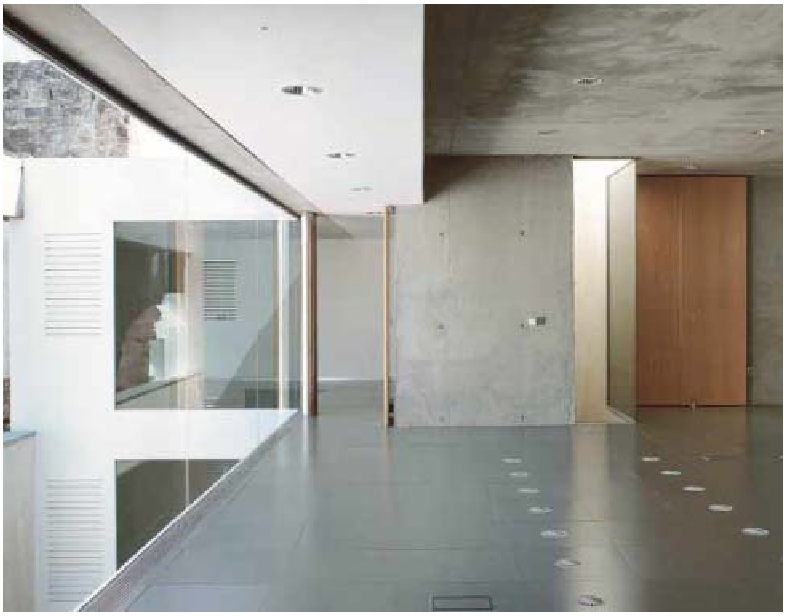
1. *Main entrance*
2. *Secured entrance*
3. *Novice cloister/ exhibition*
4. *Courtyard*
5. *Offices*
6. *Main cloister (future phase)*

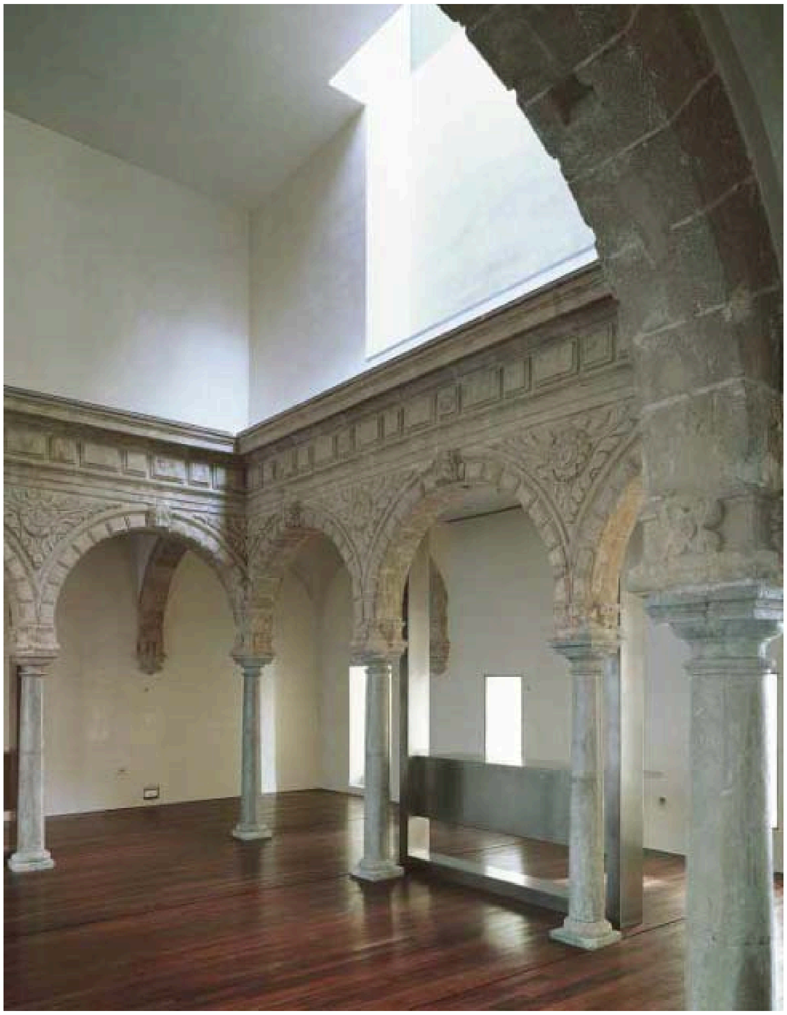
UPPER LEVEL

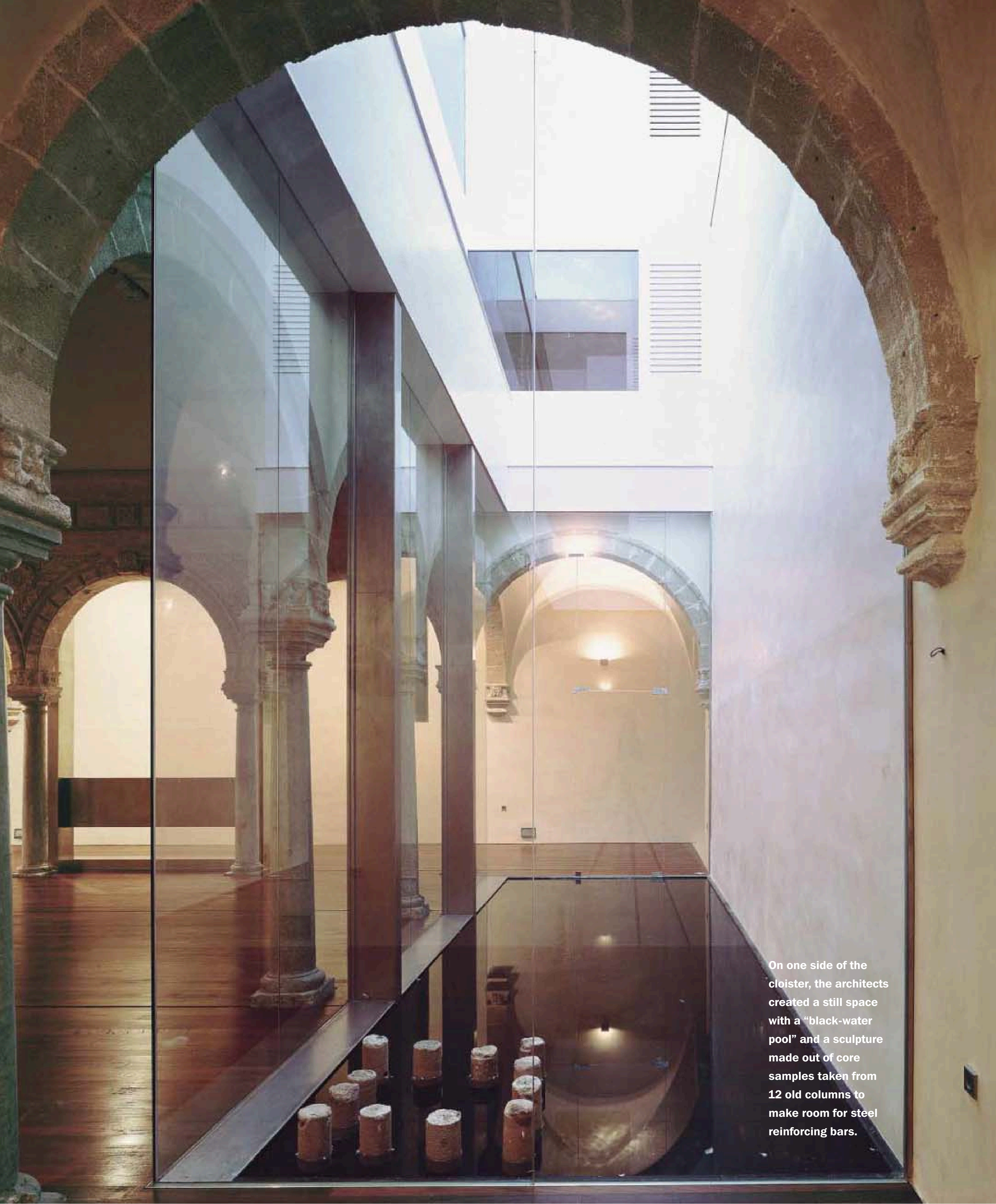


GROUND LEVEL

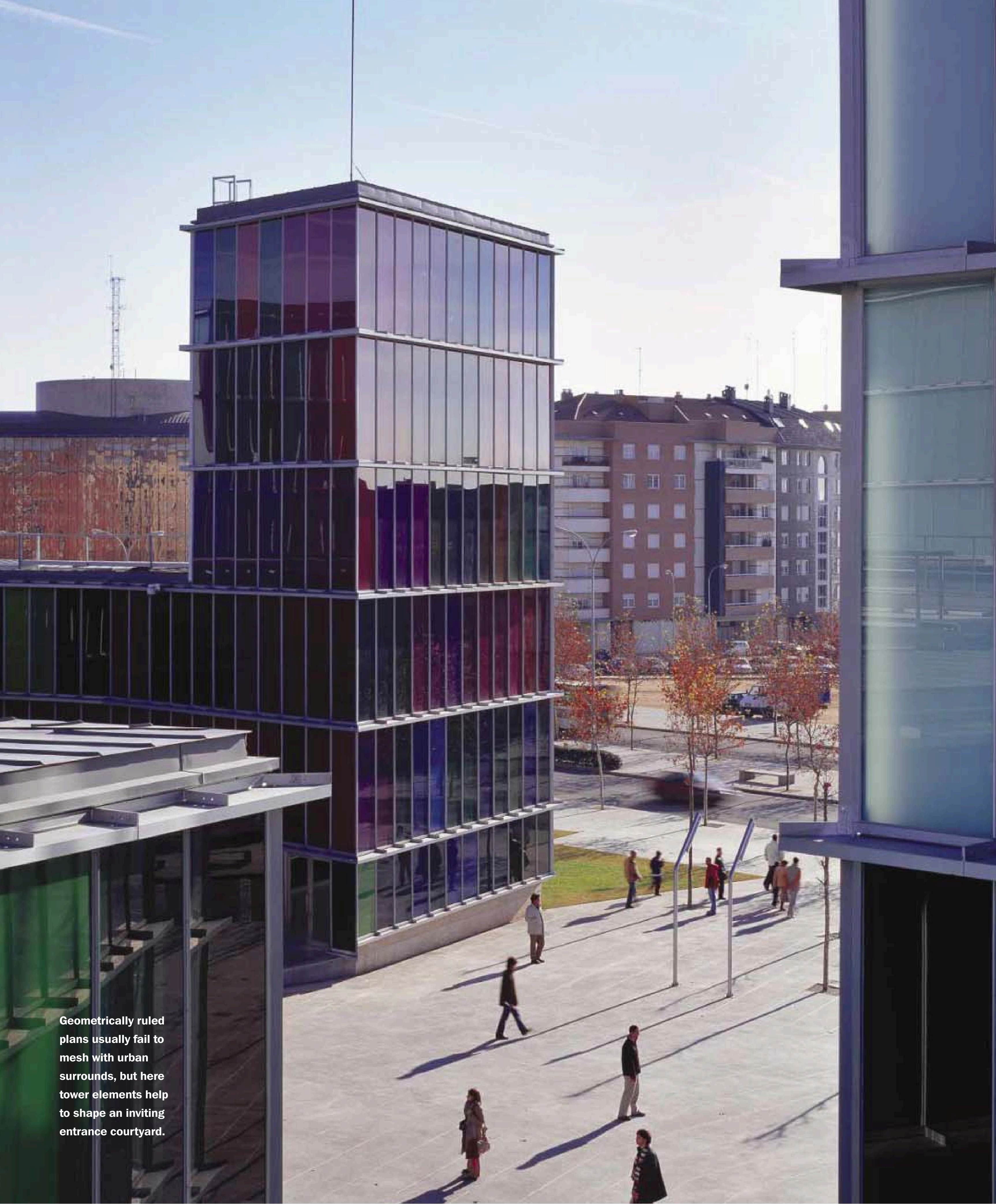
Concrete, stucco, and glass were chosen to contrast with the old stone architecture of the convent (below and bottom). Daylight slips through three trough-like openings into the interior of the cloister (bottom).





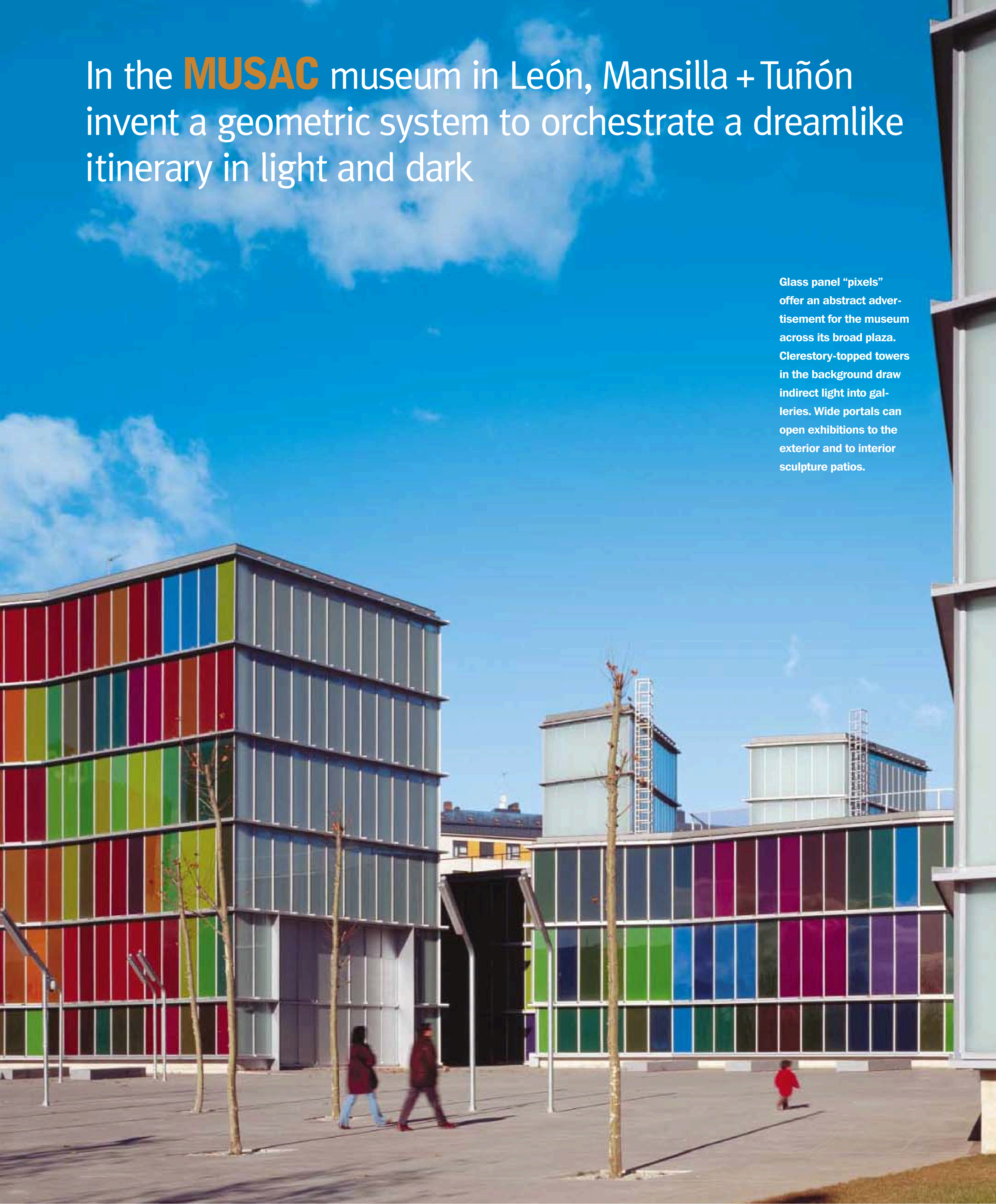


On one side of the cloister, the architects created a still space with a "black-water pool" and a sculpture made out of core samples taken from 12 old columns to make room for steel reinforcing bars.



Geometrically ruled plans usually fail to mesh with urban surrounds, but here tower elements help to shape an inviting entrance courtyard.

In the **MUSAC** museum in León, Mansilla + Tuñón invent a geometric system to orchestrate a dreamlike itinerary in light and dark



Glass panel "pixels" offer an abstract advertisement for the museum across its broad plaza. Clerestory-topped towers in the background draw indirect light into galleries. Wide portals can open exhibitions to the exterior and to interior sculpture patios.

By David Cohn

The audacity of the design for the Museum of Contemporary Art in León, Spain, lies not in radical, formal expression, but in precisely its opposite: what appears to be a radical distancing of the architects from willful form making. The Madrid architects Luis Mansilla and Emilio Tuñón achieved this distance by inventing a geometric system to generate the plan, and by applying the system with a cool but ingenious consistency. Refining earlier experiments in geometric patterning, they generated the floor plan out of parallel structural bays. The bays are composed of linear strings of alternating kinked square and rhomboidal figures, nested like the pieces of a mosaic. Each bay is 36 feet wide, and almost all are 20 feet high, of varying lengths according to the needs of the program. They are built of exposed, board-formed concrete and spanned by 500 (in total) identical precast-concrete beams. Mosaiclike, the architects string these rhomboid figures into undulating linear bays into which they have inserted galleries and other program spaces. Tuñón notes, "It's like a weave, but it can be cut at any point without losing its character. Any arrangement is equivalent or possible."

The museum is situated on a full-block site in a new area of development on the outskirts of this historic city in northern Castile. The architects originally won a competition in 1997 to build a cultural complex for the city, which was later split into two projects, a concert hall completed by Mansilla + Tuñón on a nearby site in 2002 (which features a facade screen that reflects an earlier experiment in mathematically generated form), and the museum, which was finished last December and will host its first exhibitions this spring. The museum is owned and operated by the local regional government.

Cells are left out of the weave to shape an ample entry court on the exterior, with 20,000 square feet of galleries on one side; a narrow wing containing a shop, café, and restaurant on the other; and the entry vestibule at the junction of these arms, with offices and technical areas located behind it (plan, right).

In a disconcertingly cool gesture, the uneven perimeter of the building is clad entirely in glass panels, despite the fact that the walls are largely of solid concrete. The wall system uses the thermal inertia of the concrete mass to lower the building's heating and cooling loads, explains Tuñón, while the glass skin acts as the rain barrier for the ventilated cavity behind it. The vividly contrasting colors of the panels lining the entry court are each like computer-screen pixels that the architects derived from the colors of *The Falconer*, one of the celebrated 13th-century stained-glass windows in León's cathedral. Wrapping the rest of the building is glass of a milky translucence, in which actual openings are difficult to read, and through which natural light bleeds into the sharp-angled corners of the towers, blurring their formal definition. Mansilla and Tuñón are interested in contemporary art, and there is a deliberately Pop intention behind the unsettling contrast between the bright colors of the entry and the blank absence of color elsewhere, which recalls the contrast between a lit and unlit television screen.

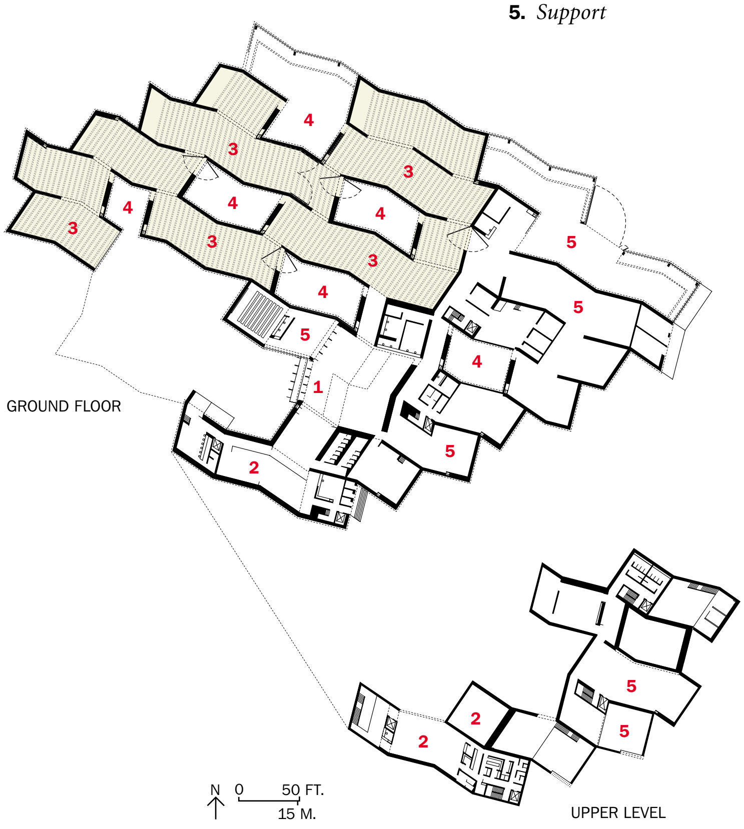
The sequence of galleries is framed at the beginning by the broad lobby topped by two light scoops that are offset to introduce the nested rhomboidal geometry. They gather contrasting temperatures of light from east and west. Bays of gallery cells deftly interconnect through the use of massive portals to make an attractively loose yet clear circulation pattern around four outdoor sculpture patios. The visitor's route through the galleries is orchestrated by the placement of the patios and by the clerestory light towers that mark the ends of several bays. The contrasting zigzags of walls and ceiling beams from one bay to the next draw the visitor through varying patterns and spatial intersections. The succession of galleries comes to a dramatic conclusion with a space overlooking the entry court where the ceiling soars to a dizzying 60 feet.

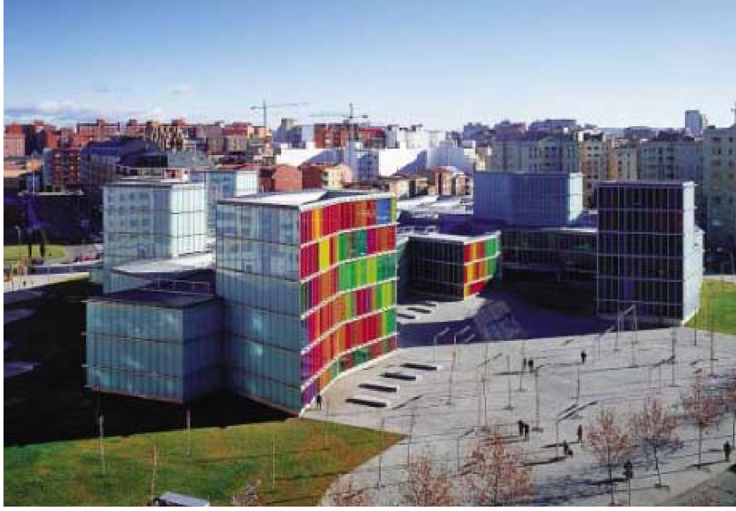
The gallery spaces are not as flexible as their layout suggests. Lacking an art-hanging armature, the concrete walls are unsuitable at best for a program of changing temporary exhibitions in which works must be hung and then dismounted. The galleries' wide bays and uniform height of 20 feet "swallow smaller pieces," as Tuñón acknowledges. He said these problems arose from a radical change in the direction of the museum after construction began. The architects designed the building for a permanent collection of large 20th-century works, and followed the client's original

David Cohn is RECORD*'s contributing editor in Spain.*

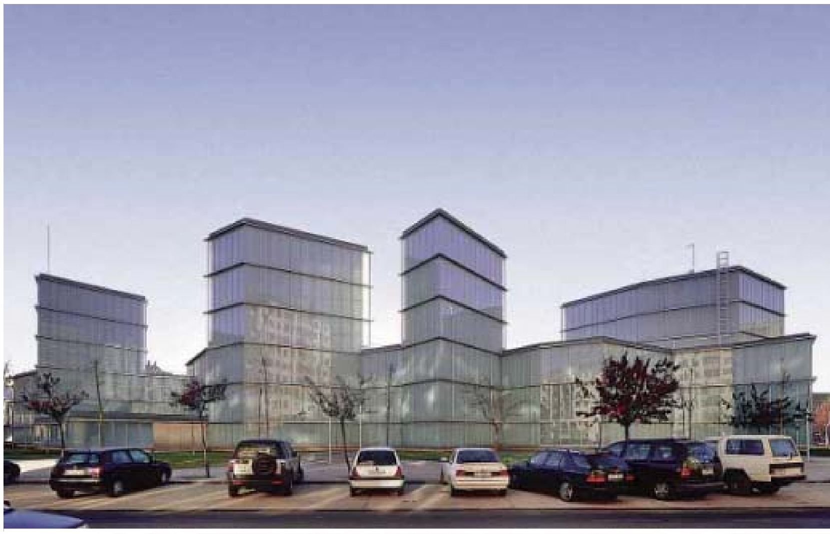
Project: *MUSAC - Museum of Contemporary Art of Castile and León, León*
Architect: *Mansilla + Tuñón—Luis Mansilla, Emilio Tuñón, principals; Andrés Regueiro, Luis Díaz-Mauriño, Ainoa Prats, Jaime Gimeno, Clara Moneo, Teresa Cruz, Oscar F. Aguayo, Gregory Peñate, Katrien Vertenten, Ricardo Lorenzana, team*
Contractor: *MUSAC de León Ute (FCC & Teconsa)*
Sources:
Curtain wall: *Secrisa*
Doors: *Dacin; Puertas Cubells*
Lighting: *Carandini; Louis Poulsen*

1. *Lobby*
2. *Shop/café/restaurant*
3. *Exhibit*
4. *Patio*
5. *Support*



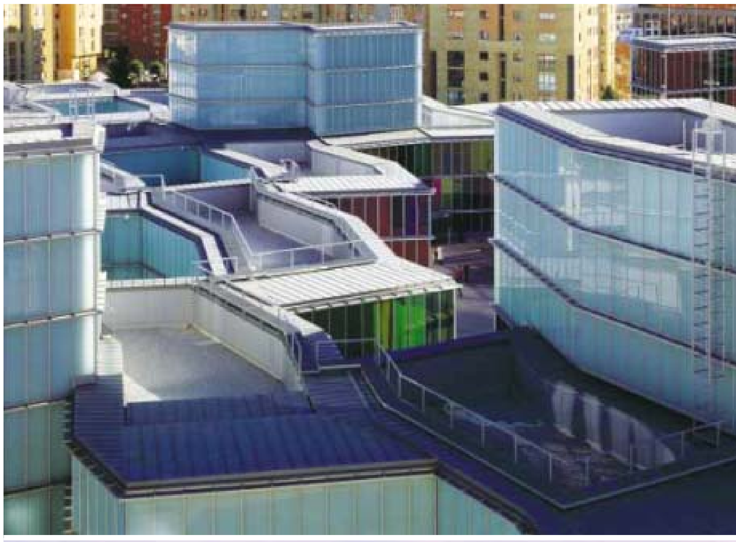


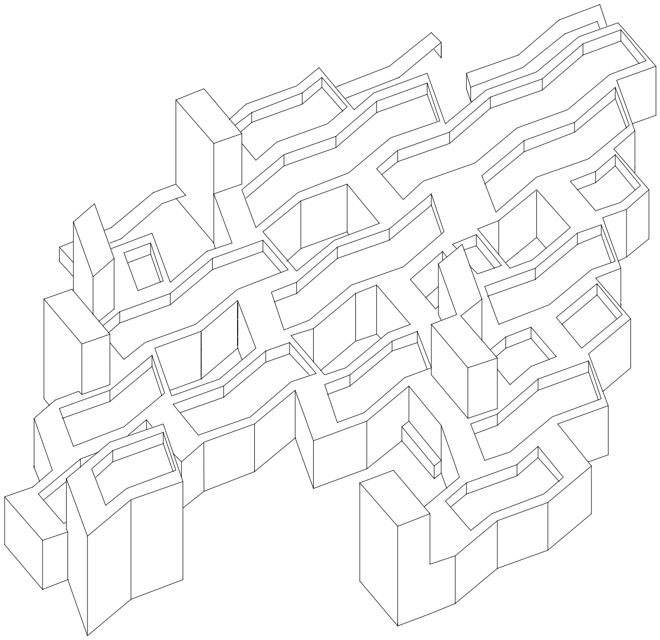
The architects popped up tower forms (south side, second from top), and carved patios (third from top) out of the plan's repetitive cellular organization (drawings, below). The brightly colored entrance side (top) contrasts with a sober translucency elsewhere (bottom).



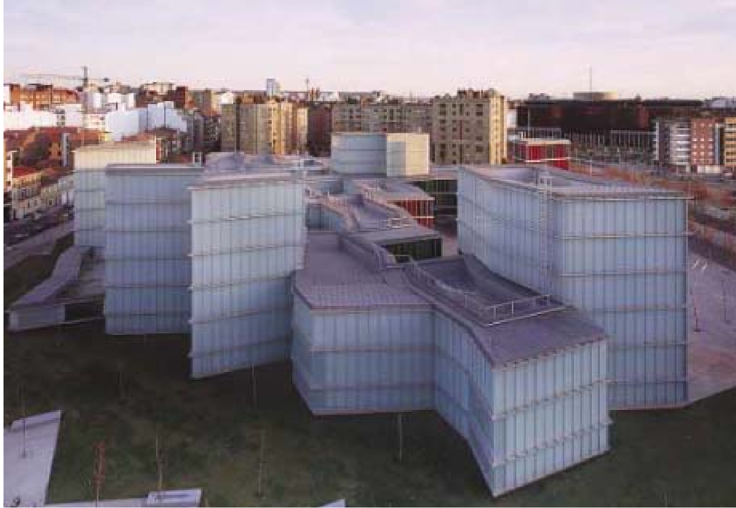
wish for a tough, "garage" aesthetic. By the time a new director, who decided to focus on temporary exhibitions, was appointed, the building was largely complete. Mansilla and Tuñón are now developing an exhibition plan that includes shades for the gallery windows, suspended track lighting, and movable partitions (recladding walls in gypsum board was deemed too expensive). Such problems are common in Spain's public architecture, which is subject to changing political currents and overseen by officials who are generally very inexperienced clients.

The mosaic geometry of the museum's plan can actually seem more limiting than liberating, as it imposes a uniform scale on all the spaces, while the arbitrary quality of the glass cladding seems a bit alienating and cavalier. Despite these issues, the building is refreshingly unexpected, complex, and well-developed. Many of the difficulties will undoubtedly be addressed in the installation plan, when the interaction between artworks and gallery spaces can be more appropriately tailored. The mosaic plan recalls other experiments in cellular planning, such as Frank Lloyd Wright's hexagonally gridded Usonian Houses. But as the architects point out, their use of more irregular geometry doesn't imply a relentless geometric system but makes intriguing local opportunities more important in the eccentric intersections of the spaces, a genuine and ingenious innovation. And while geometrically ruled "carpet" plans generally fail to connect to urban situations, the bright entry plaza here actually succeeds in creating a sense of urbanity in its drab suburban surroundings. ■

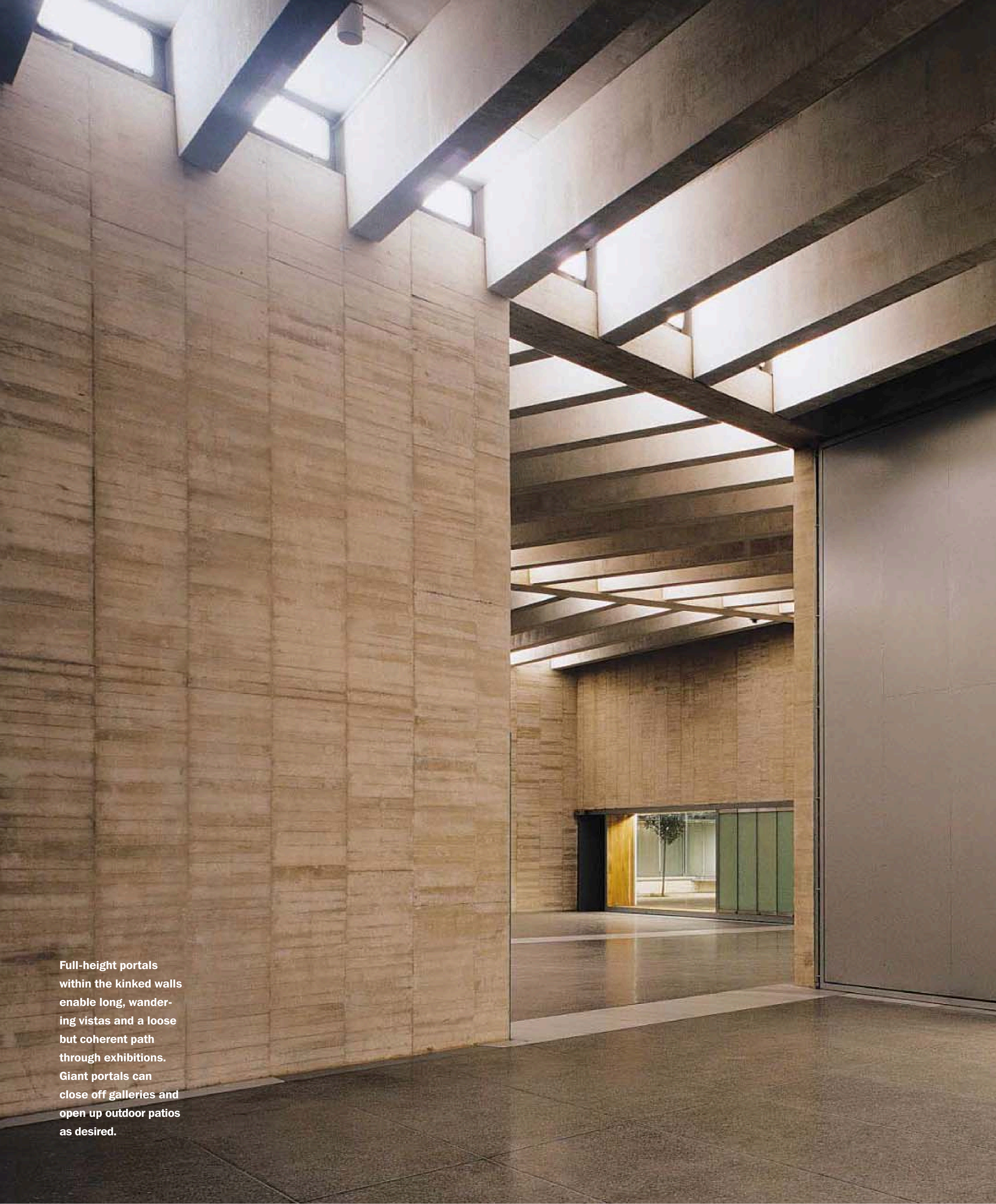




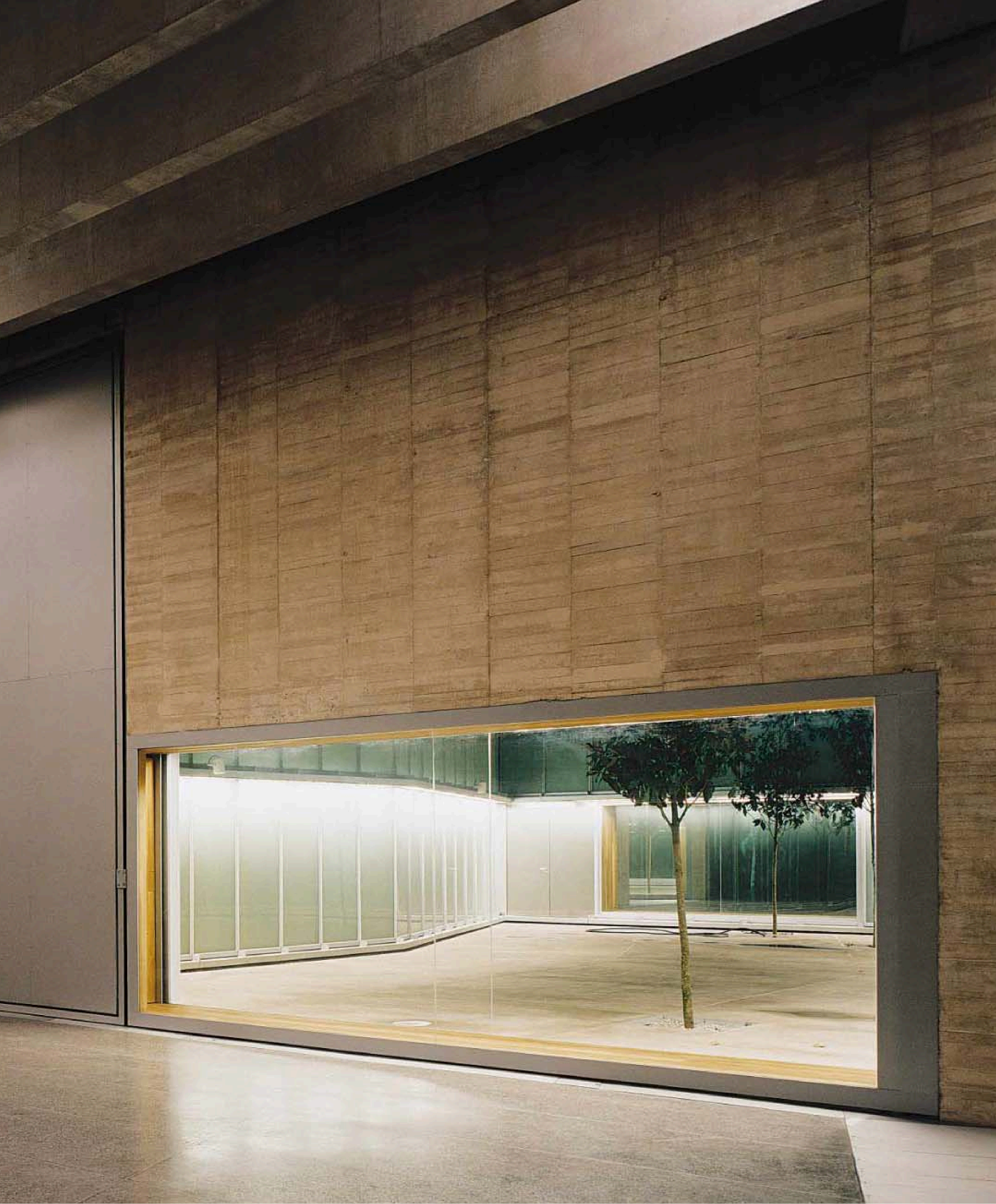
AXONOMETRIC



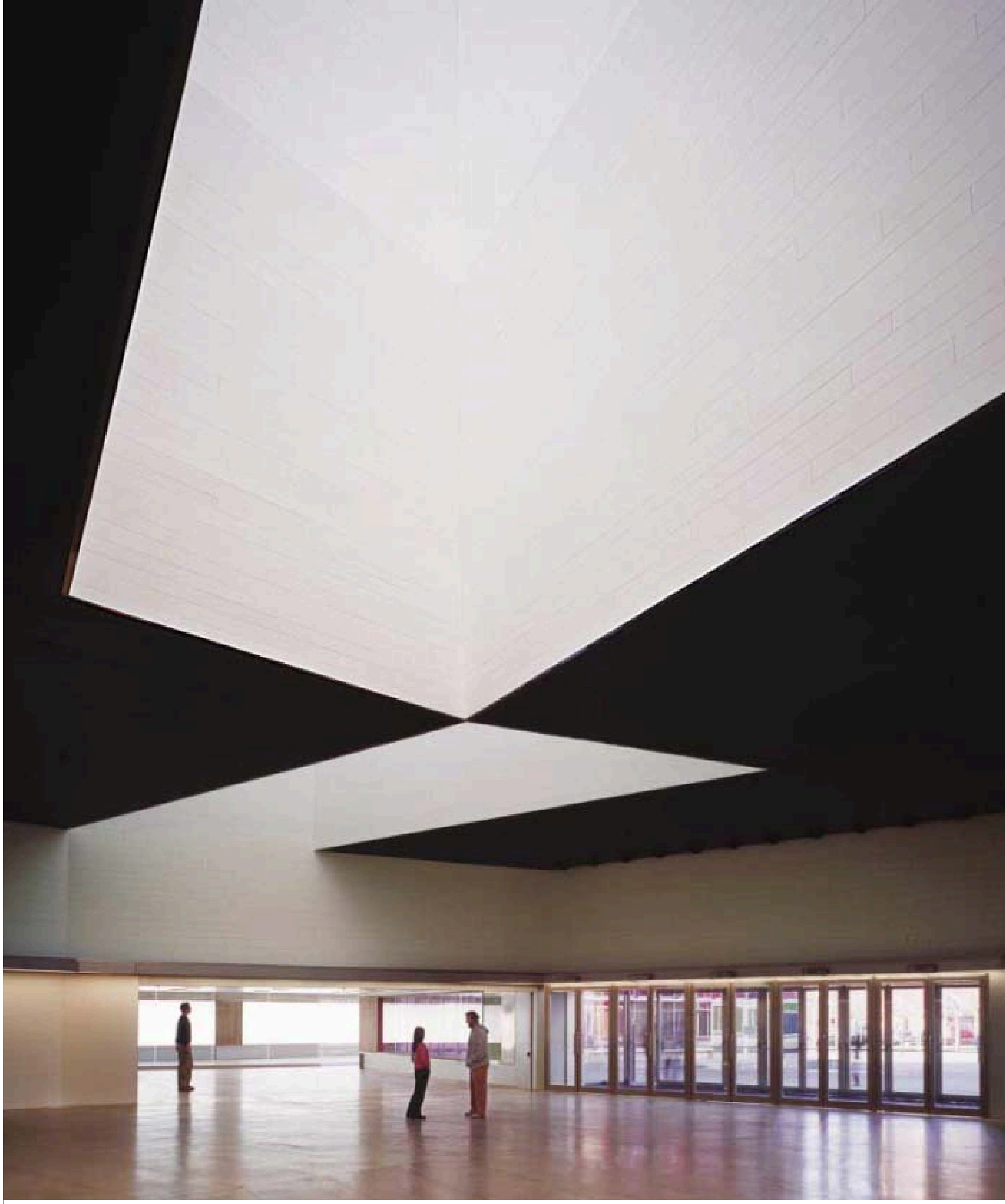
PHOTOGRAPHY: © ROLAND HALBE

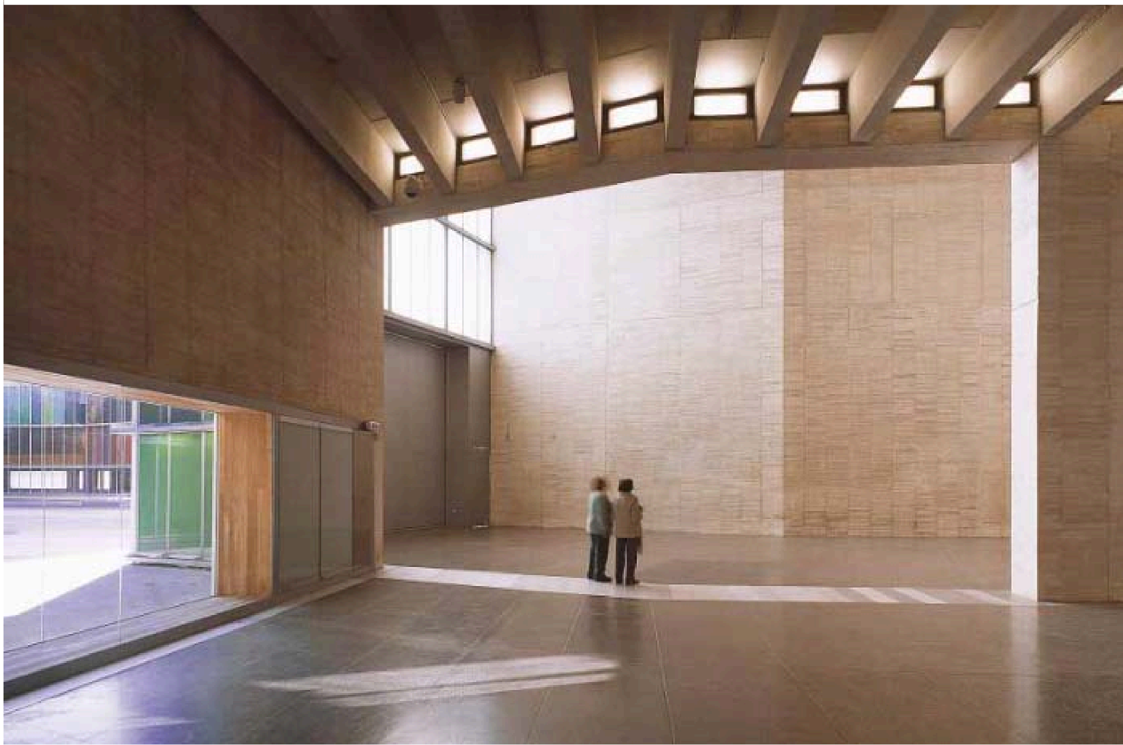


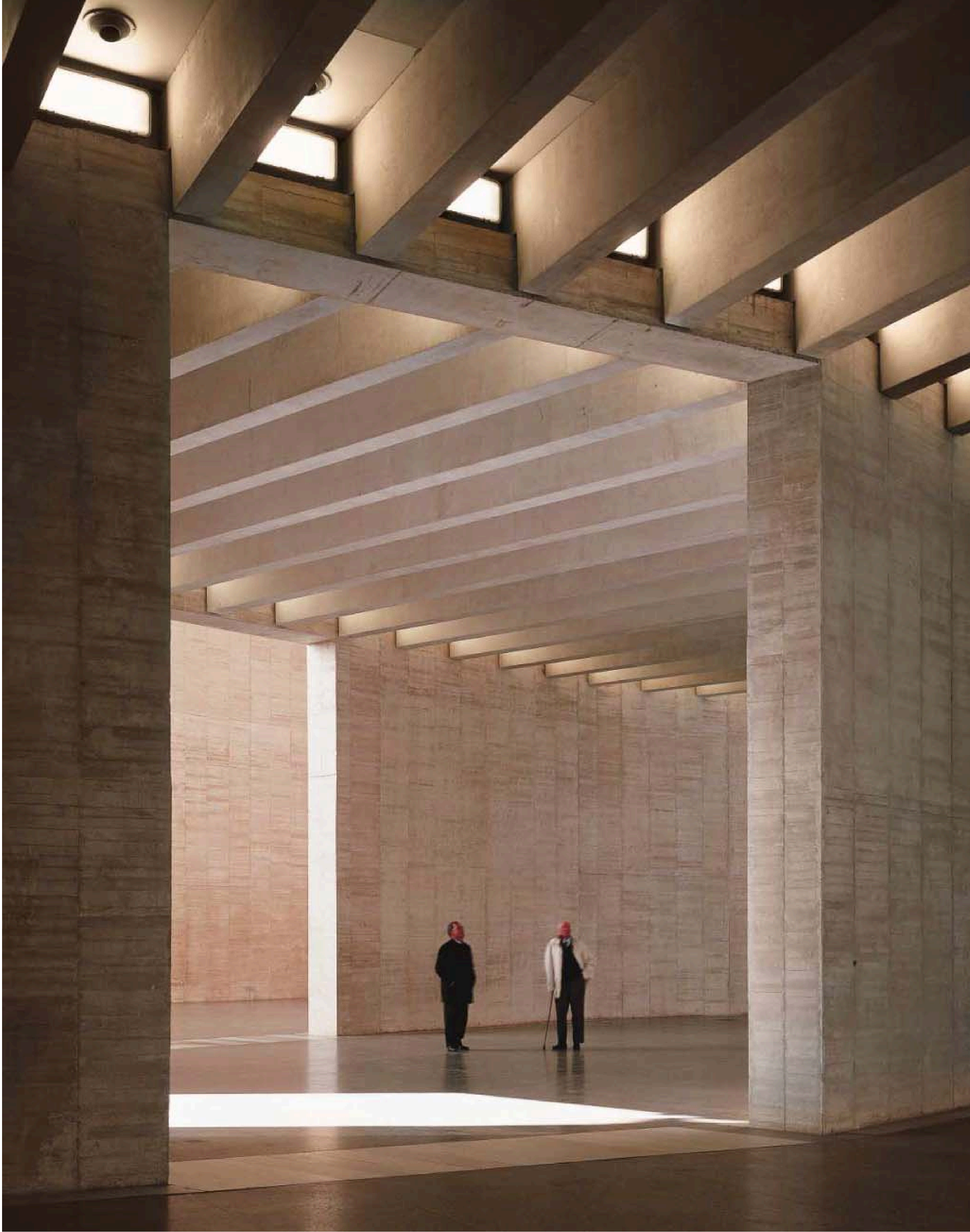
Full-height portals within the kinked walls enable long, wandering vistas and a loose but coherent path through exhibitions. Giant portals can close off galleries and open up outdoor patios as desired.

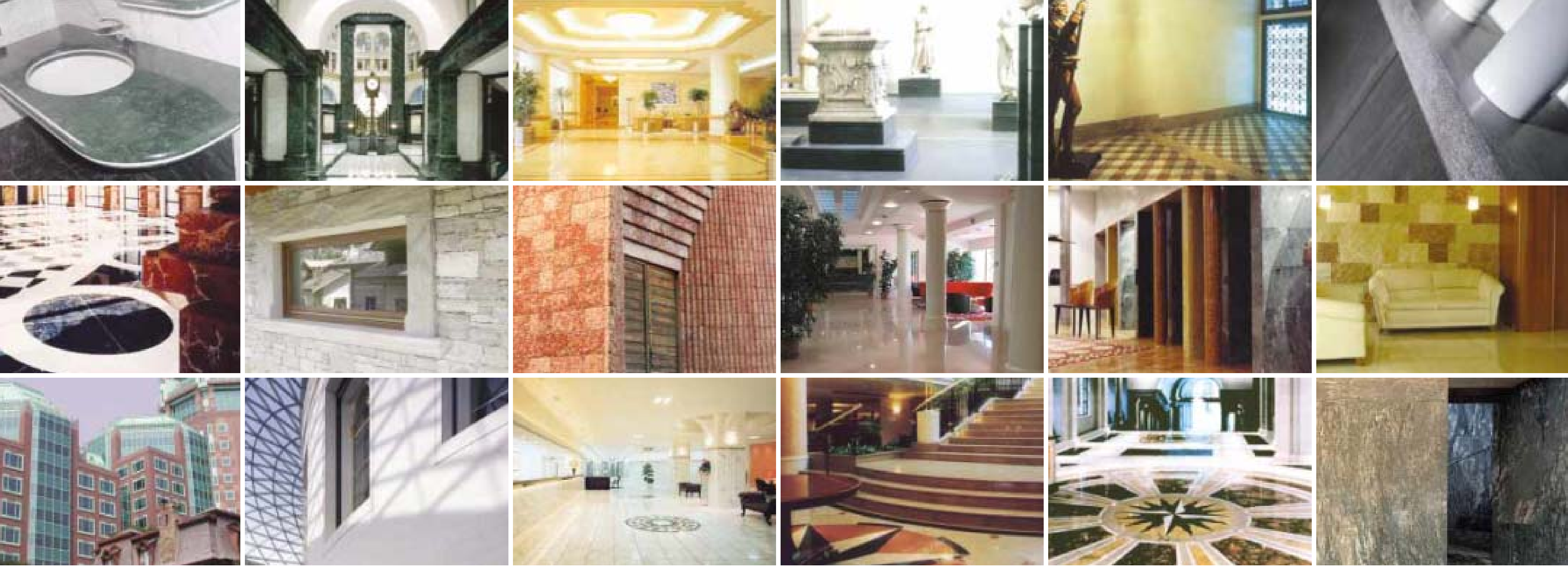


High, shaftlike clerestories in the lobby (top) introduce the idea of mysteriously sourced daylight that will recur through the gallery sequence. Daylight also is selectively introduced from high windows and broad portals opening to interior patios (bottom and opposite). The uniformly large and tall galleries were intended to emulate the vast industrial spaces contemporary artists often use, but the concrete-beam ceilings and board-formed walls create a monumental, almost primordial calm. The architects are now devising a track-light system, and an art-hanging and partitioning system for the galleries.









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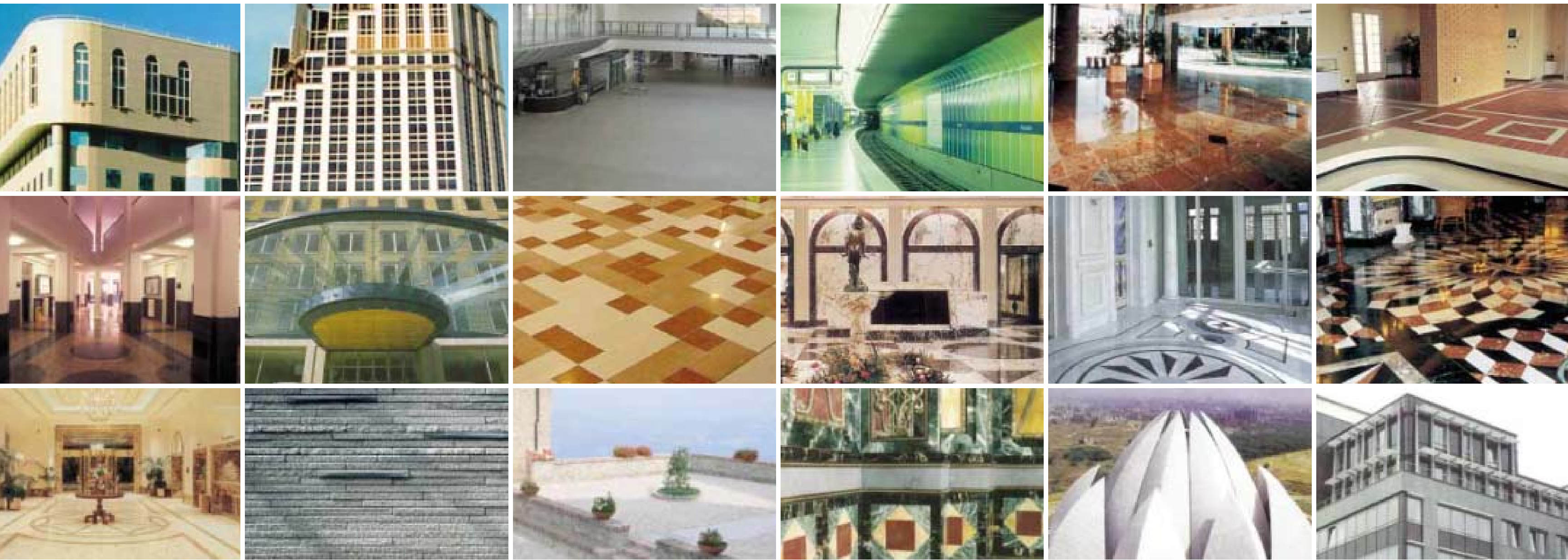

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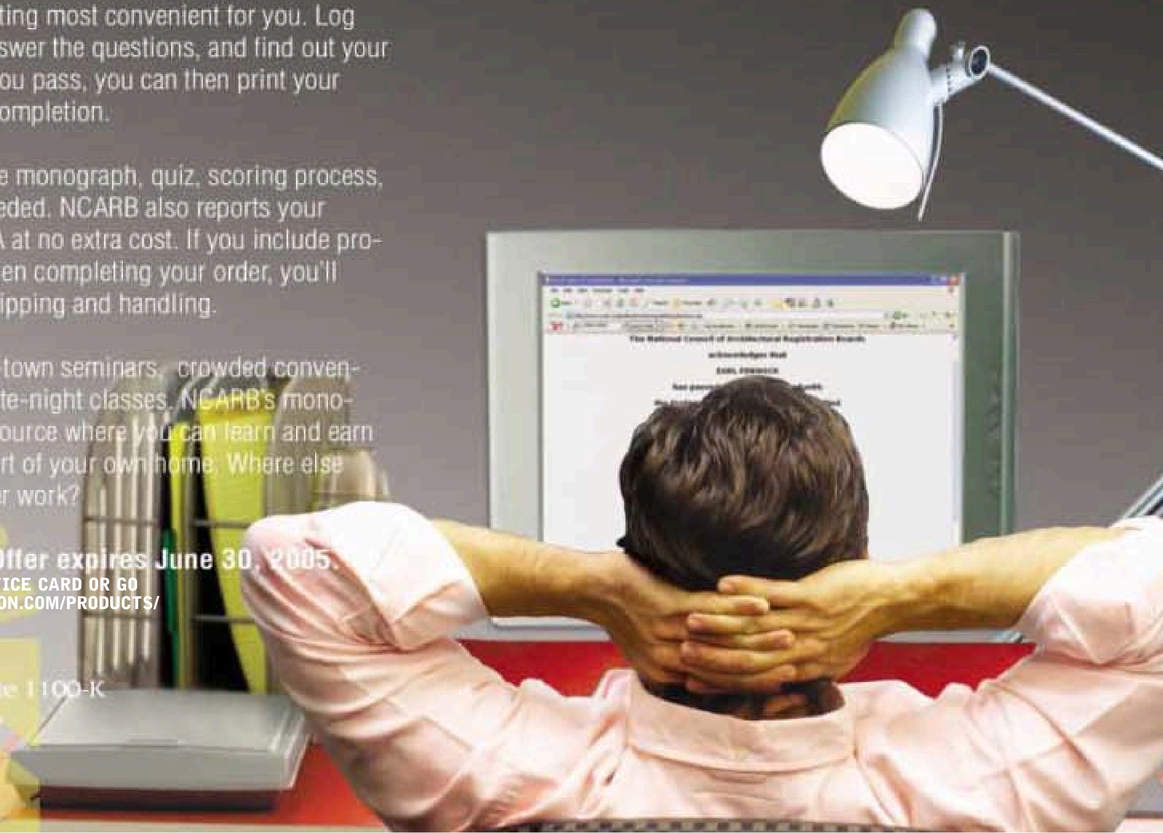

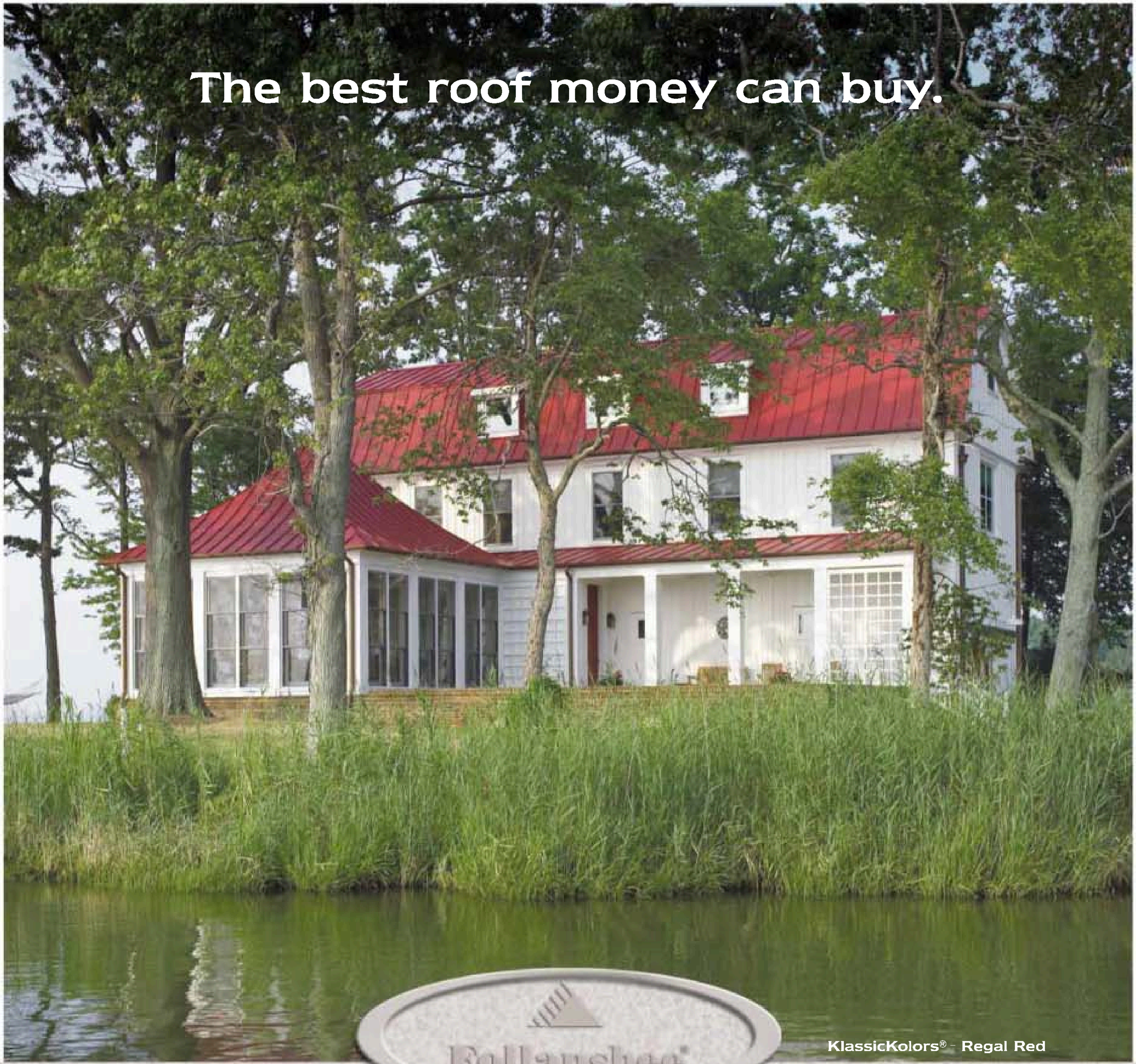

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Restoration

Presenting the Past

ALL ASPECTS OF UPDATING OLD BUILDINGS, FROM RESTORATION AND RENOVATION TO ADAPTIVE REUSE, DEMAND ARCHITECTURAL CREATIVITY IN SHIFTING BETWEEN THE PAST AND PRESENT.

PHOTOGRAPHY: © MICHAEL MORAN (1); BARRY HALKIN PHOTOGRAPHY (2); RICHARD BRYANT/ARCAID (3); KARANT ASSOCIATES (4)

1.

Pocantico Hills, New York

In a complex of stone barns renovated by Machado and Silvetti Associates, Asfour Guzy Architects inserts a dramatically proportioned restaurant.

2.

New Haven, Connecticut

Kieran/Timberlake updates and expands a college at Yale University designed by James Gamble Rogers with clarity and sensitivity.

3.

Northampton, England

John McAslan restores and adds onto an exotic work by Charles Rennie Mackintosh for a well-visited house-museum in the Midlands.

4.

Chicago, Illinois

Florian Architects modernizes without bowdlerizing an old bank through careful manipulation of forms, materials, and lighting.

For more information on these projects, go to Projects at **www.architecturalrecord.com**.

By Suzanne Stephens

A lot of architects back off from the preservation movement's three r's—restoration, renovation, and (adaptive) reuse. Particularly restoration. They look on it as too much of a craft, without enough creative design input. They fear becoming typecast as mere technicians conserving past artworks, instead of artists building on tradition.

Not surprisingly, architects who have committed themselves to this endeavor see it differently. Paul Byard, FAIA, both a Modernist and preservationist architect, who is the director of the Historic Preservation Program at Columbia's Graduate School of Architecture, Preservation and Planning, in New York, is one such apologist. "You are not really just restoring," he protests. "You are putting it back so that the restored building will say something the original doesn't say. After all, you are restoring in a different time and in a different way that addresses different conditions."

Indeed, many historic restorations often involve an amalgam of strategies aimed at preserving the past. Restoration may be coupled with extensive remodeling, renovation, adaptive reuse, or adding onto the historic artifact. Boundaries blur and allow architects to creatively combine new forms and materials with the old. A number of buildings presented on the following pages demonstrate the various forms these efforts take, where old and new vocabularies could collide—but don't. A complex of Norman-style barns designed by Grosvenor Atterbury in the early 1930s and restored and renovated by Machado and Silvetti Associates for a center for farming and agriculture, plus a restaurant by Asfour Guzy Architects, demonstrate how the old is rejuvenated by the new through attention to scale, detail, and material.

KieranTimberlake's restoration of a Yale college campus designed by James Gamble Rogers similarly shows how the architect can generate new spaces within an old Georgian-style masonry-and-wood building using a Modern vocabulary of steel and glass. By adhering sensitively to the proportion and scale of the existing building, KieranTimberlake bolster the continuity between it and their new interventions.

John McAslan's restoration of a small town house in Northampton, England, originally designed by Charles Rennie Mackintosh, also includes an adjoining addition for a gallery. Again, McAslan's glass, steel, and wood remodeling of the town house next door adheres to the underlying syntax of Mackintosh's design: not only its proportions and scale, but its crisp linearity and geometric clarity.

Florian Architects' renovation of a bank in Chicago illustrates the complexity and bold straightforwardness by which the new can offset the old. The dialectic of Modern and Classical vocabularies doesn't devolve into discordance. Instead, the juxtaposition highlights the drama of both.

The less visible hand: La Scala

What about restoration and renovation where the architect's hand is less visible? Three projects shown below demonstrate that the surgery can be just as masterful even if it is not blatantly apparent. With the restoration and renovation of Teatro alla Scala, the famed opera house in Milan, Elisabetta Fabbri acted as the architect in charge of restoring the old house, while Mario Botta created new architectural additions for less public operations. The Neoclassical opera house, originally designed by Giuseppe Piermarini and dating to 1778, had last been restored after a World War II bombing.

Decades later, the horseshoe-shaped auditorium needed a sprucing up as well as a major overhaul of its stage equipment, plus expanded stage and storage space for opera and ballet performances. On top of that, it was time to accommodate functions that had been expanding off-site and in an assortment of shantylike structures at the rear of the house. Much to the chagrin of the public, the house closed for three years, until December 2004, during which time Fabbri restored the many layers and surfaces of the old building, including gilding, painting, stucco, and papier-mâché work in the 2,105-seat main hall. She rid the place of some of the linoleum flooring and vinyl paint that had crept in over the years, and brought back the missing finishes (such as Venetian terrazzo flooring and marmorino on the walls). For his part, Botta designed a large stage tower with space for the equipment as well as six rehearsal rooms, and another three-level structure, elliptically shaped, rising above the old wing of the house and containing offices, dressing rooms, workshops, and other functions.

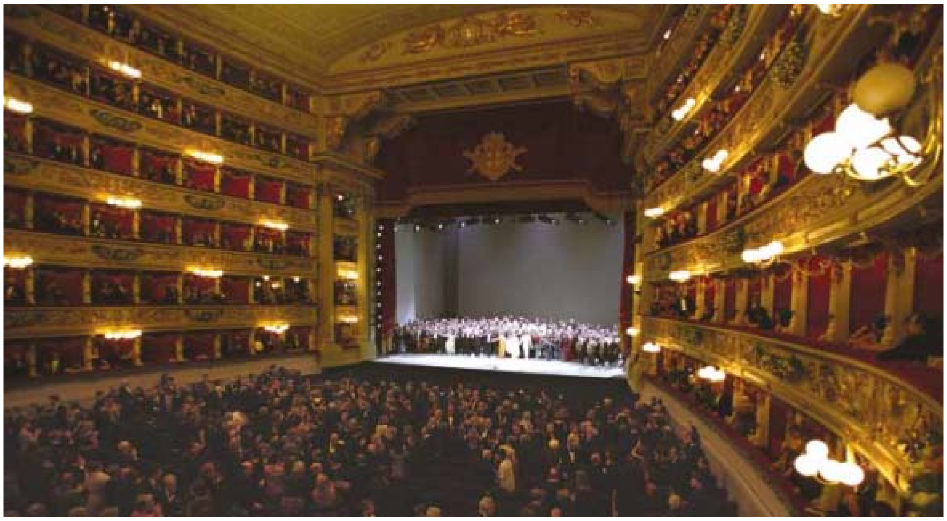
Since Piermarini had used stone—granite for the plinth and pale Viggiù for the rest—Botta clad his steel-framed and reinforced-concrete structures with a light Botticino Classico marble. Although he was initially criticized for the demolition at the rear needed to make way for the stage tower and rehearsal rooms, and for potentially overpowering Piermarini's opera house, Botta claims he deliberately put the two new additions as far away as possible from Piermarini's facade. He has a point: From the pedestrian's perspective at the entrance to La Scala, they seem to merge into the background of the surrounding city.

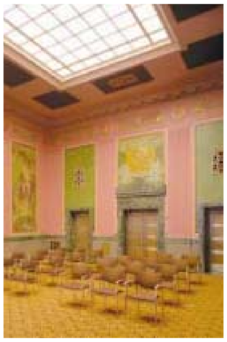
Office building to stately symbol: Ohio Judicial Center

A restoration and renovation project in Columbus, Ohio, has transformed a state office building into spectacularly stately courtrooms for the Supreme Court of Ohio. As the project's architect, Robert Loversidge, Jr., FAIA, of Schooley Caldwell Associates, notes, the Ohio Judicial Center both physically consolidates and provides a strong identity to the court facilities that had been scattered at several locations. The Art Moderne building, designed in 1933 by Henry Hake, a Cincinnati architect, had been sumptuously fitted out the first time round, albeit for slightly different uses. Schooley Caldwell needed to adapt the building to courtroom requirements, which involved new technologies for security, and new heating and cooling systems. At the same time, the firm reconstituted draperies, wall fabrics, and cleaned and restored the surfeit of carved walnut, gold leaf, decorative plaster, ornamental bronze and nickel-silver light fixtures, doors, grills, and screens, along with the murals, bas reliefs, and other forms of art that graced the structure. The pièce de résistance is Hearing Room 2, now the main court-

PHOTOGRAPHY: © MARCO BRESCIA (LA SCALA); BRAD FEINKNOPF (OHIO JUDICIAL); MICHELE CROSERA (LA FENICE)

Milan's Teatro alla Scala (left) opened last fall after an extensive restoration by Elisabetta Fabbri (main hall, below). Mario Botta carried out the renovation and additions at the rear of the opera house, including an elliptical drum.





The Ohio Judicial Center in Columbus (above), designed in 1933 as a state office building, has been restored and renovated for courtrooms (Hearing Room 2, right, and another, left) by Schooley Caldwell Associates.

room, where the architects installed a new carved walnut bench, along with invisible sound systems, sprinklers, TV cameras, and lighting amid the sumptuous historic fabrics, wood carving, gilt, and murals. The $83 million project for the 415,000-square-foot building is typical of the work that Loversidge loves to do. "It is hard to give an old building new life and do it skillfully," he says. "You have to go through a complex programming process regarding the current needs, sell the project politically, deal with budgets, and then insert all the stuff you don't see that makes it work for code, energy efficiency, security, and so on, so it won't hit you in the face. All of this is design." But more important, Loversidge contends, is that restoration and renovation is increasing in the overall percentage of an architect's usual work, since more buildings, including Modern ones, are getting old enough to need major surgery.

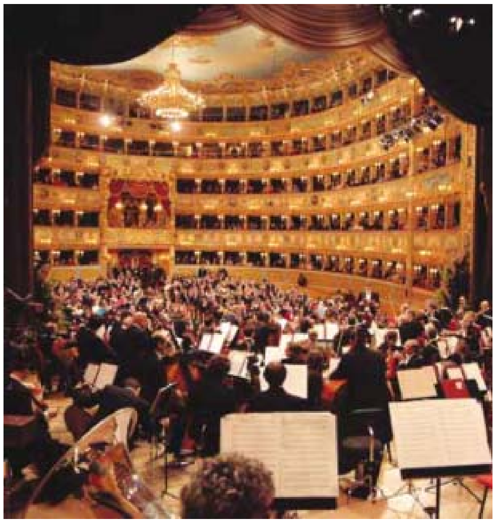
More than major surgery: La Fenice

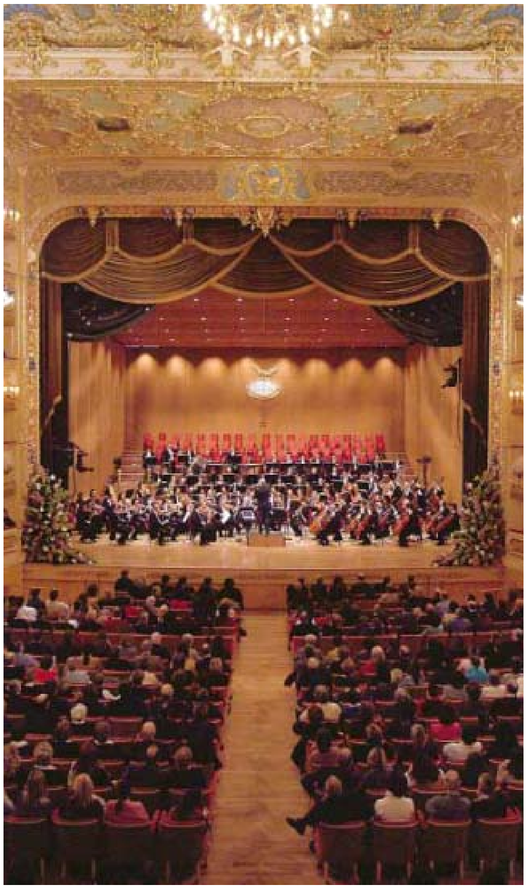
After two electricians deliberately set fire to the splendid Teatro La Fenice in Venice in January 1996, the city moved to reconstruct the almost totally destroyed Neoclassical building designed by Giovanni Antonio Selva, which opened in 1792. Revered for its splendidly refulgent interiors, the opera house was a treasured part of the Venetian cityscape. A competition was immediately held to find an architect and contractor [RECORD, February 2004, page 30]. Gae Aulenti won, but through a complicated series of moves relating to the choice of contractor, the job was given to Aldo Rossi, and after his death in 1997, to his successor firm, Arassociati Studio Architettura of Milan.

The city retained the services of Elisabetta Fabbri, the architect in charge of restoring La Scala, as its supervisor for the restoration of the main hall, the ornate, 1,076-seat Sala Opera, which was totally destroyed. Its gold-leaf trim, frescoes, and chandeliers had to be reconstituted by Mauro Carosi from photographs, engravings, and film footage. The wood, papier-mâché, stucco, and plaster were also carefully restored to ensure the same acoustical resonance of the original hall. Arassociati undertook the basic reconstruction of the auditorium, besides installing a technically up-to-date backstage and creating new rehearsal rooms. The firm also designed a small, new 300-seat auditorium for rehearsals and chamber performances, now named Sala Rossi, in the south wing, where it has its own entrance. For the new construction, the architects used a limestone—*pietra distria*—plus *biancone*, a stone that is seen in Palladio's architecture, but is increasingly hard to find.

Nevertheless, the task of reconstruction of La Fenice did generate some debate about the desire to rebuild from scratch, since only the facade could be salvaged. By replicating the older structure many (mostly young architects) feared the end result would be a lifeless copy. Marco Brandolisio, a partner in Arassociati, argues that the significance of the original architecture for the city is "linked with a style … It is not desirable in a city like Venice to build in contraposition." This sort of restoration and addition is not just a reconstruction of an old artifact, but, as Brandolisio puts it, "a way of staying with the life of a building, which can change over with years." Robert A.M. Stern, architect and dean of Yale University's School of Architecture, amplifies this point: "Preservation is important not only to remind us of our past, but to communicate what our past means to us today." But as he rightfully adds, "The past cannot be trapped in a false amber of pastness. It must be part of the complex palimpsest of modern life." ■

After Teatro la Fenice in Venice burned to the ground in 1996, it took years to reconstruct the 18th-century theater. By the end of 2003, the late Aldo Rossi's successor firm, Arassociati Studio Architettura, had brought the lavish hall back to its former glory.





Stone Barns Center

Pocantico Hills, New York

1

MACHADO AND SILVETTI'S RENOVATION OF A COMPLEX OF BARNS AND ASFOUR GUZY'S RESTAURANT DESIGN REJUVENATE FALLOW FARMLAND.

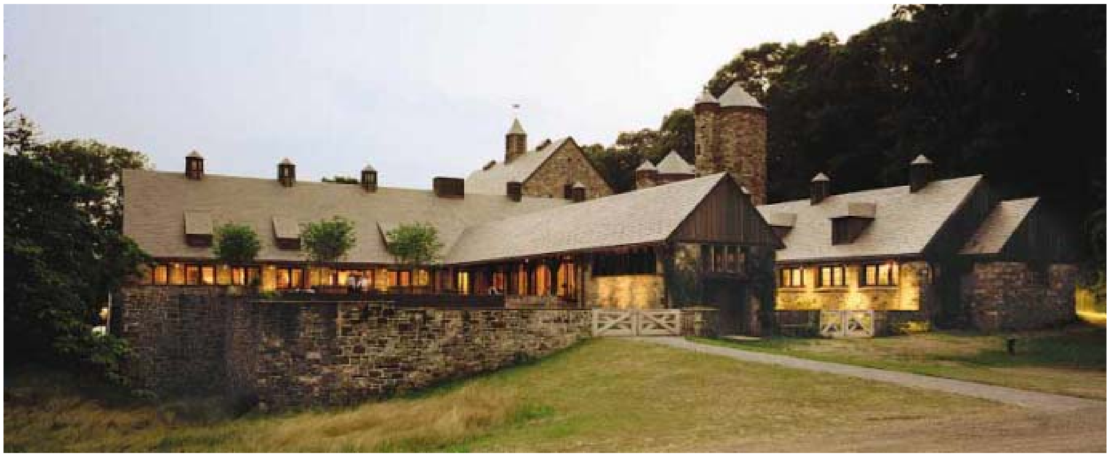
By Suzanne Stephens

Architect/planner for Stone Barns Center for Food and Agriculture: *Machado and Silvetti Associates—Jorge Silvetti, principal; Rodolfo Machado, consulting principal; Michael LeBlanc, Gretchen Neely, project managers*
Architect/interior designer for Blue Hill at Stone Barns: *Asfour Guzy Architects—Peter Guzy, Edward Asfour, Mark Bixler, team*
Owner: *Stone Barnes Restoration Corporation (Center); Dan, David, and Laureen Barber (Blue Hill)*
Consultants: *Arup (structural, m/e/p for Center and Blue Hill, plus acoustic and a/v for Center); Richard Burck Associates (landscape); Peter Coxe Lighting Design (Center); William Armstrong Light Design (Blue Hill); Shen Milsom & Wilke (acoustic for Blue Hill); Laureen Barber (tabletop and accessories for Blue Hill); Sam Tell and Son (kitchen)*

Size: *40,000 square feet (Center, phase one); 14,000 square feet (Blue Hill)*
Cost: *Withheld*
Completion date: *Summer 2004*

Sources
Steel windows: *Hope's Windows*
Glass: *Pilkington*
Seamless acoustical plaster: *BASWAphon (Blue Hill)*

For more information on this project, go to Projects at ***www.architecturalrecord.com***.



PHOTOGRAPHY: © MICHAEL MORAN

Over the past few decades, as more farmland around New York City has been grabbed up by developers building 10,000-(or more)-square-foot houses, the small farmer has often succumbed to the pressures of the buyers' market. But ironically, aid for the farmer has come—at least in Pocantico Hills, New York—from the landed gentry. David Rockefeller and his daughter Peggy Dulany have turned a complex of stone barns designed for the Rockefeller family by Grosvernor Atterbury in the early 1930s into the Stone Barns Center for Food and Agriculture. Here, a working farm for livestock, chickens, and vegetables, plus a learning facility and cultural center, now demonstrate to the public the advantages of local, community-based farming and environmentally sensitive agricultural practices.

As an extra draw to the rustic complex, the center also includes a restaurant, Blue Hill at Stone Barns, run by the owners of the much-acclaimed Blue Hill Restaurant in Greenwich Village. At Stone Barns, the produce and livestock from the farm are transformed into exceptional cuisine.

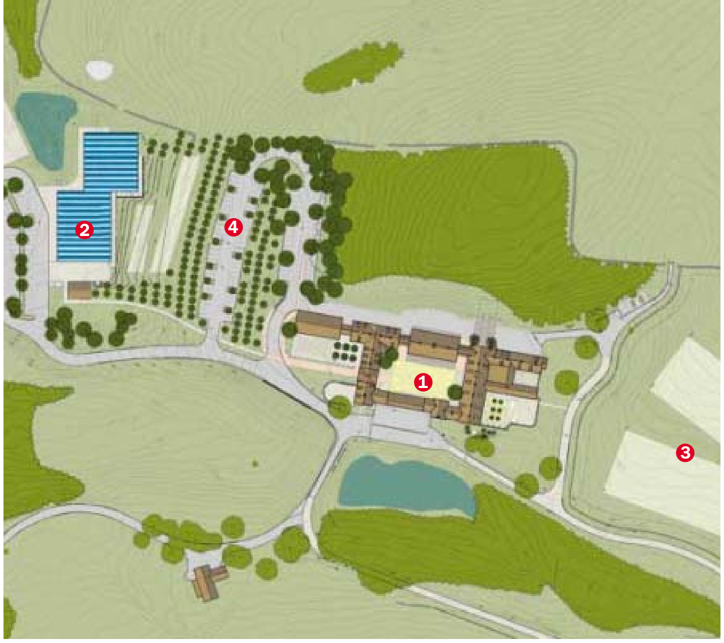
The fieldstone barns, which display the same craft, scale, and detail of Atterbury's famed Tudor-style Forest Hill Gardens in Queens, New York, were built by John D. Rockefeller, Jr., to provide fresh milk for his large family (including his sons Nelson and David) at Kykuit, their weekend home. Kykuit is now a house-museum, and the barns long ago ceased to serve any function. Yet their stone walls and silos, arranged around large and small courtyards, coupled with their bucolic setting in Pocantico Hills, 20 miles from Manhattan, are unique. So Rockefeller turned 80 acres of the originally 4,000-acre family estate into a farmland preserve for the center, dedicated to his late wife, Peggy. She had worked to preserve the vanishing farmlands through the American Farmland Trust, and at one point had used the barns to raise Simmethal cows. With a $30 million investment, Rockefeller and Dulany put together an imaginative mix of nonprofit and for-profit uses, of which the first phase, some 40,000 square feet, opened last year.

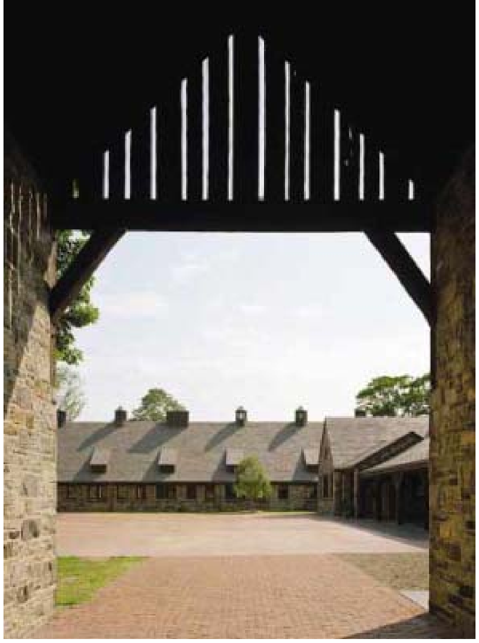
Program

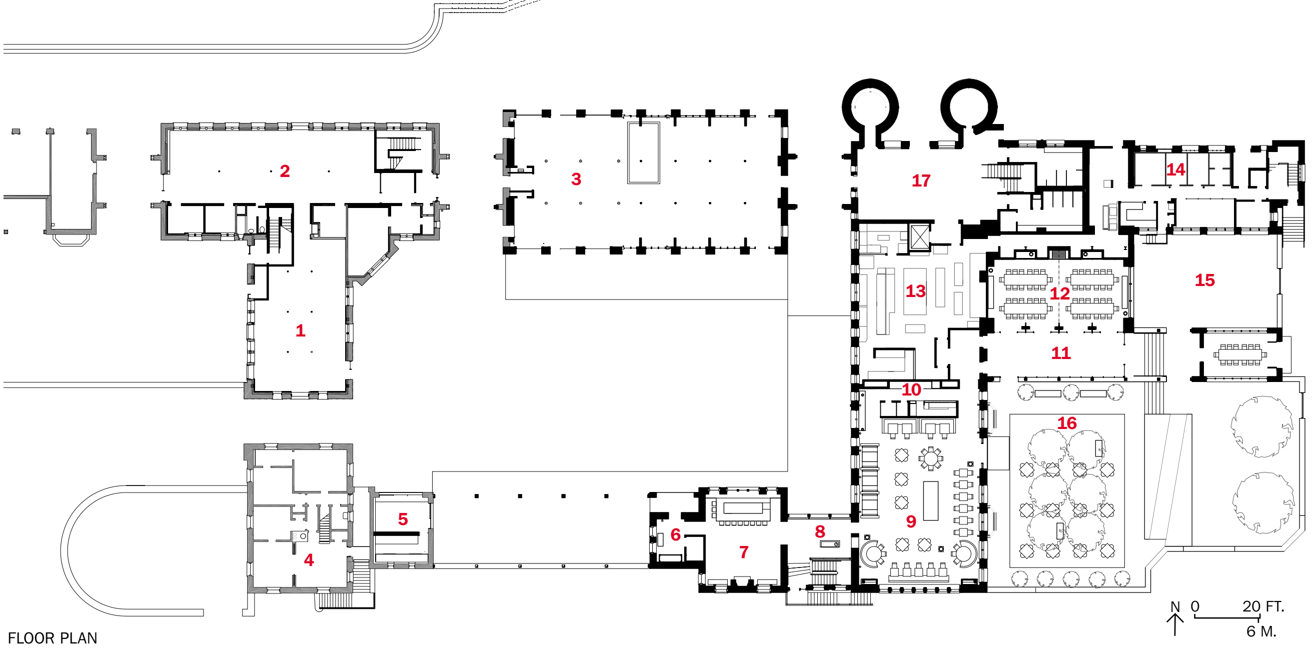
In drawing up a master plan, Machado and Silvetti Associates of Boston not only renovated the barns for classrooms and conference spaces, exhibition spaces and offices, but also designed a 24,000-square-foot greenhouse for growing produce all year. Now Machado and Silvetti is working on the 20,000-square-foot second phase that includes an almost-finished visitors' center. Plans call for an "event hall"

Visitors drive past the Blue Hill at Stone Barns restaurant (opposite), then around the south side to the parking area (site plan, right). The main entrance (far right) takes them into the main court. On the north side, the twin silos (below) herald an entrance to the event space.

1. *Main building*
2. *Greenhouse*
3. *Growing fields*
4. *Parking*







FLOOR PLAN

1. *Visitors' center*
2. *Library/research*
3. *Exhibition space*
4. *Offices*
5. *Café*
6. *Blue Hill entrance*
7. *Restaurant bar*
8. *Reception*
9. *Main dining room*
10. *Wine rooms*
11. *Private dining foyer*
12. *Private dining*
13. *Kitchen*
14. *Storage*
15. *Herb garden*
16. *Outdoor dining*
17. *Event space entry hall*

for social functions catered by the restaurant, which will occupy the second story of the middle barn kitty-corner to the restaurant.

Meanwhile, Dan, David, and Laureen Barber, the restaurateurs of the for-profit restaurant, brought in Asfour Guzy Architects, designers of Blue Hill in Greenwich Village. The country restaurant accommodates 125 guests in the former dairy barn, plus another 60 in private dining rooms, and 48 on outdoor dining terraces.

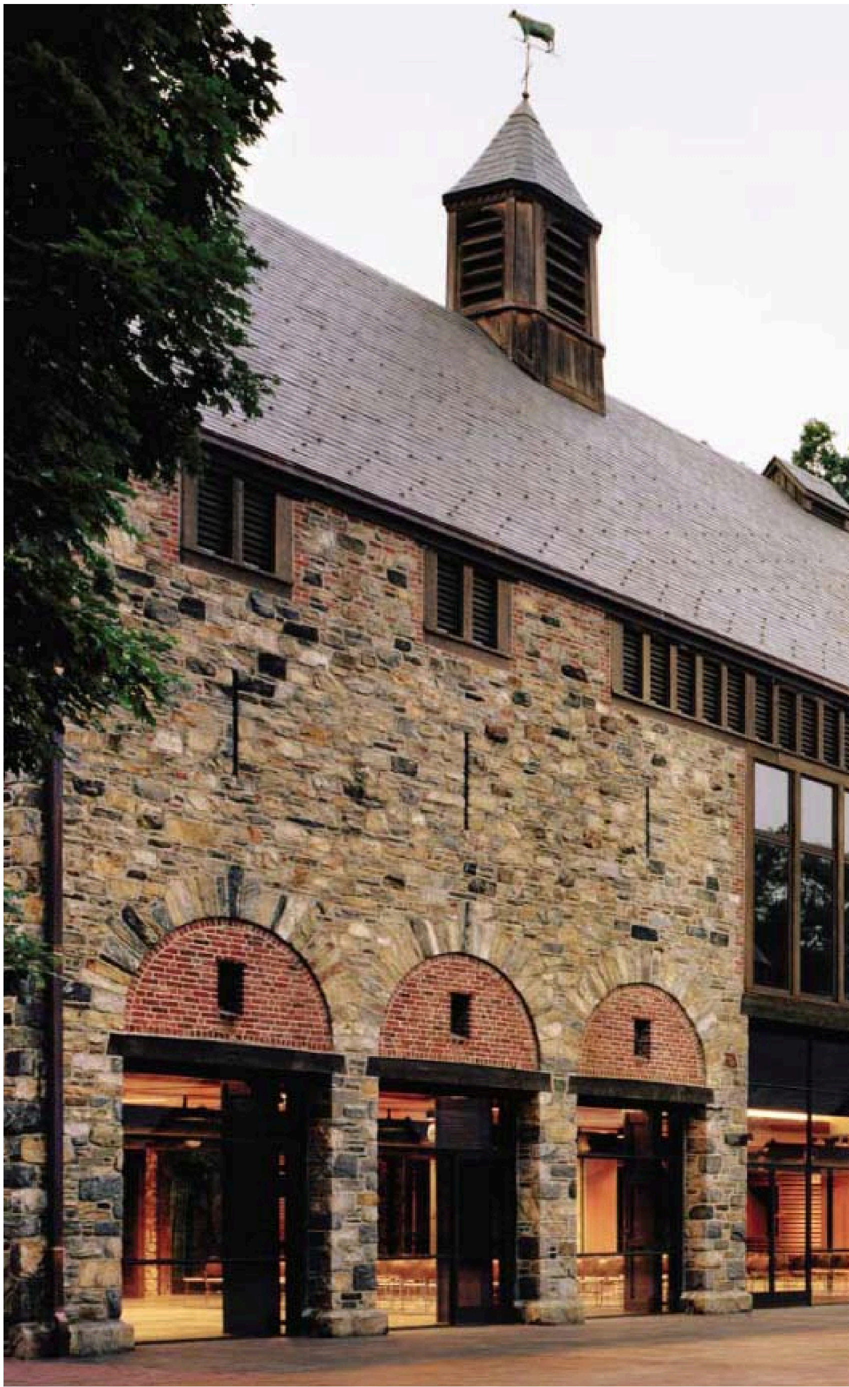
Solution

The entry road takes visitors past rolling hills where cows and lambs graze, Berkshire pigs chow down, and chickens lay eggs, and then along the south side of the barn complex to the parking lots. From here, visitors enter a gatelike passage into an expansive courtyard, bounded by stone buildings of different sizes, and containing a visitors' center, library, and exhibition space on one side, and a café, administrative offices, and the restaurant on the other. A small, discreet porch on the right of the courtyard signals the location of the restaurant, while the two stone silos mark the entrance to the event space.

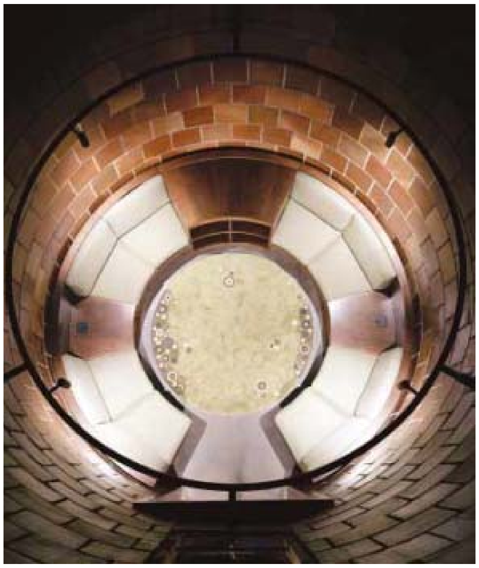
Basically, Machado and Silvetti worked with structural shells, since the stone barns were not heated, glazed, or fitted out for human habitation. Some of the walls were load bearing, although Atterbury had relied for the most part on a steel frame structure allowing large openings to occur in the stone masses. In adding windows, Silvetti said his firm tried not to disrupt this mass-to-void relationship in the original architecture. In the old hay barn, which is now an exhibition and conference space, for example, the architects fitted Low-E double glazing with steel frames into the 8-by-10-foot bays (one, in the center, rises to 14 feet). Machado and Silvetti also added slate roofs in certain areas to complement the local field stone, while leaving others shingled in wood. In the hay barn, a simple concrete slab for storing hay on top has been replaced by a dropped ceiling of recycled wood with acoustic properties. The original concrete floor, however, was left in place and stained, while existing chestnut doors were restored as partitions.

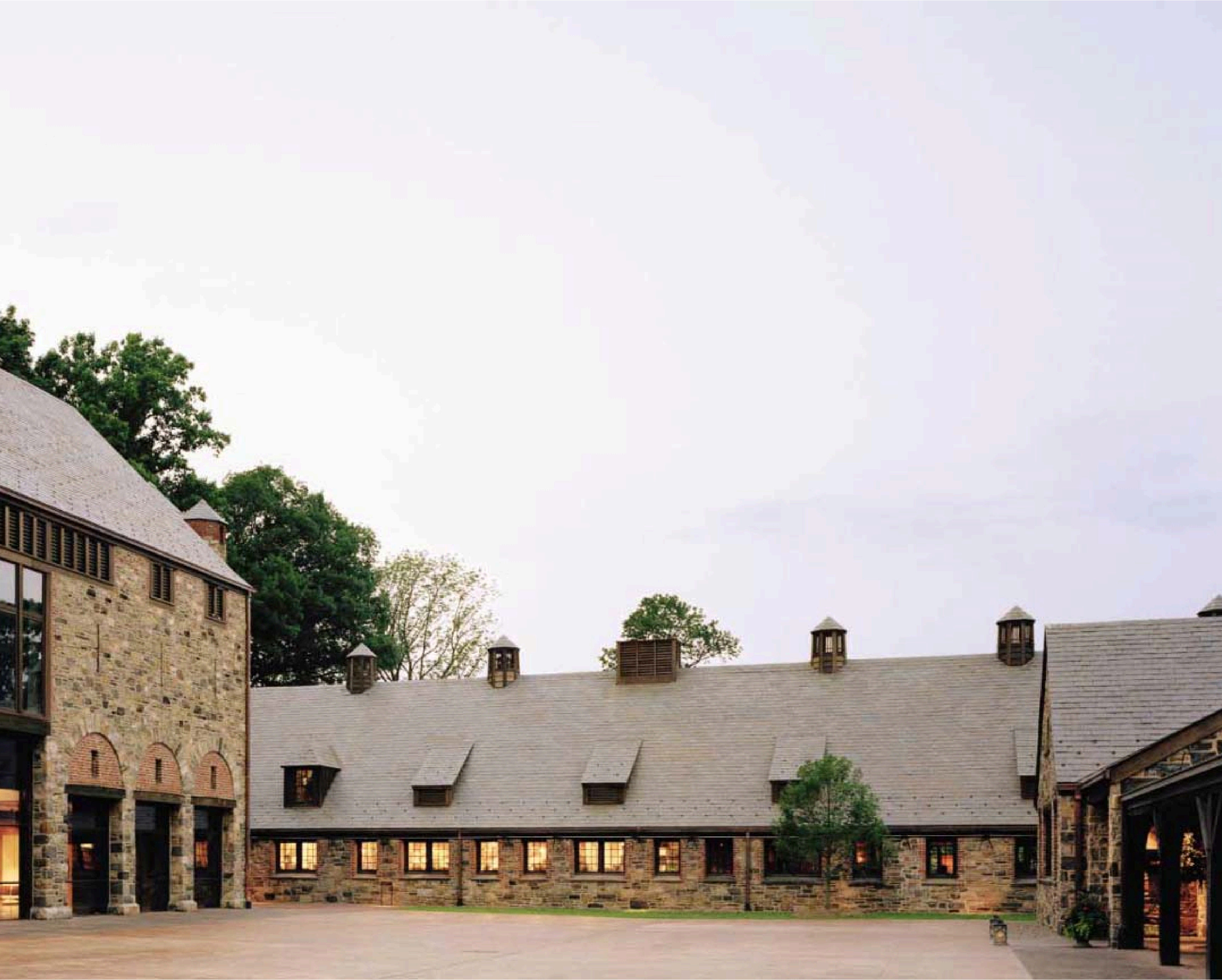
As far as the design of the Stone Barns restaurant goes, Peter Guzy of Asfour Guzy Architects is swift to explain, "We didn't want French country or a white Modern look." The architects sought instead to emphasize the tectonic quality of the space, while instilling an overall sense of comfort and warmth: "We searched for a vocabulary that would fit into the Atterbury construction," Guzy adds.

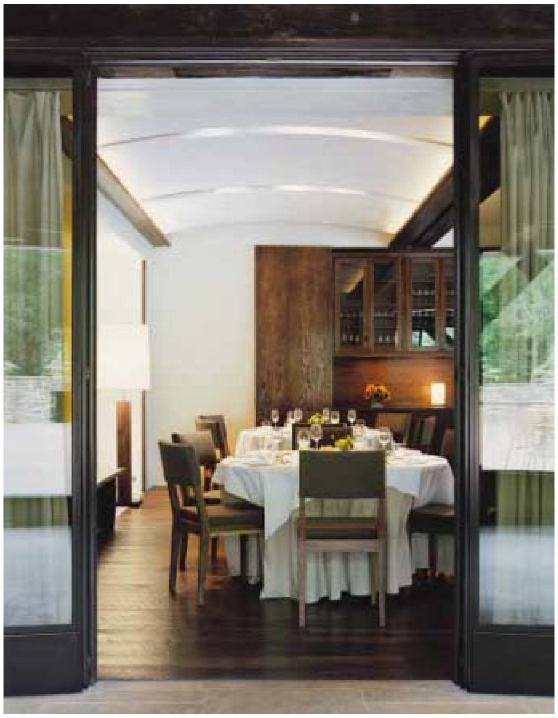
Steel bow trusses dominate the 2,250-square-foot dining room. By removing a plaster ceiling suspended from the trusses spanning the 38-foot-wide space beneath the

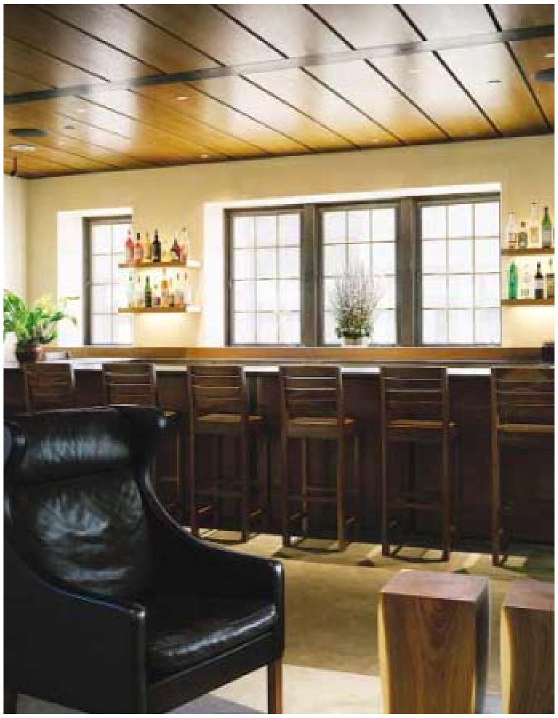


Machado and Silvetti glazed large openings in the stone walls of the barns, and added slate roofs in certain areas. The firm also turned an old hay barn into a multipurpose space for exhibitions and lectures (right), and made the silos into sitting areas (far right). Asfour Guzy Architects placed the entrance to Blue Hill at Stone Barns restaurant at the far end of the courtyard (at far right below).

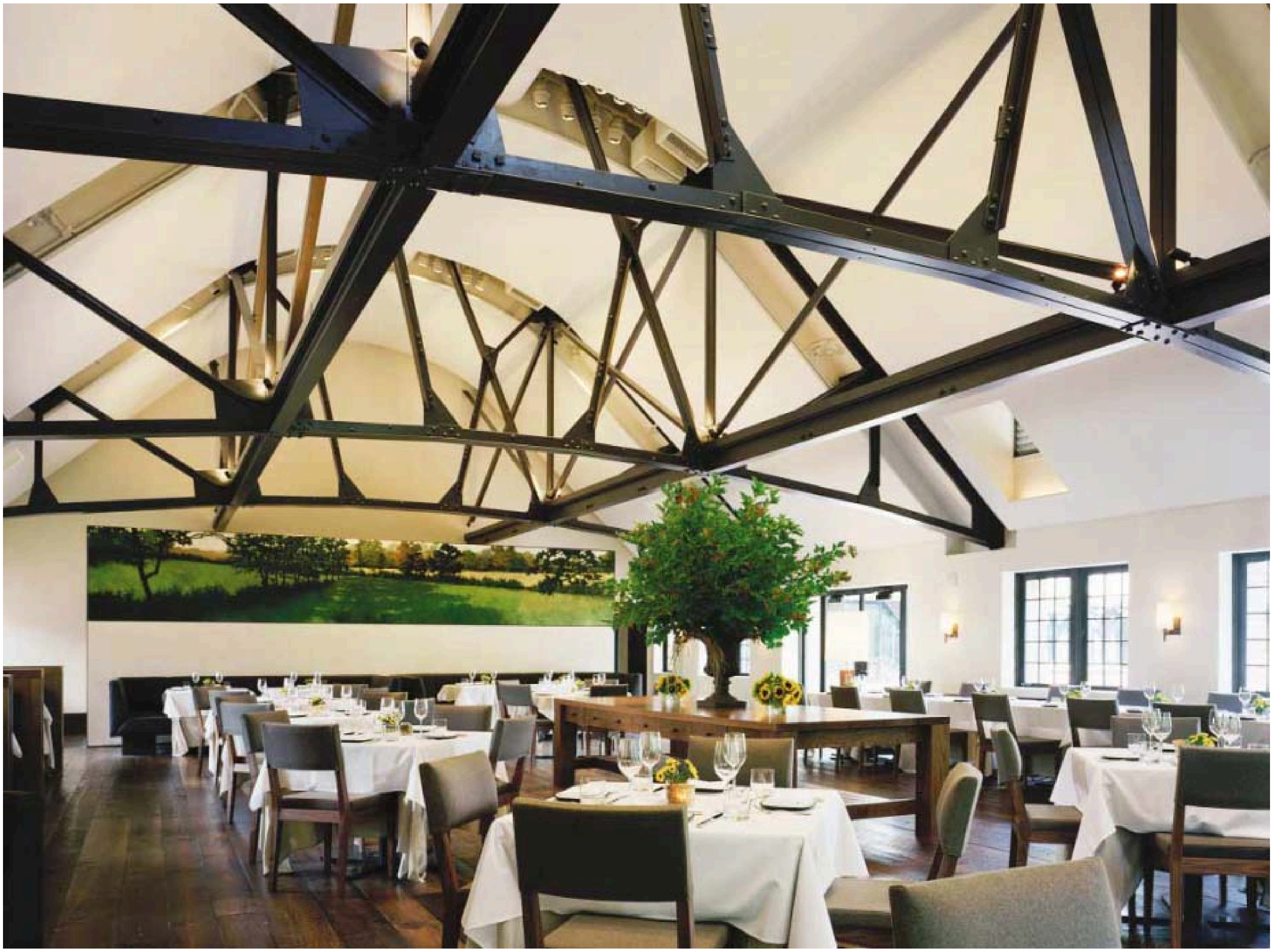








In designing the restaurant at Stone Barns, Asfour Guzy highlighted Atterbury's architecture (opposite), exposing the bow trusses in the dining room (below), and adding specially found furnishings there and in the bar (left). The private dining rooms (far left) have slightly arced ceilings made of acoustical plaster, with floors of antique heart pine planks from an old warehouse in New York.



steel-framed gabled roof, Asfour Guzy, working with Arup, thinned out the steel truss-and-beam frame and exposed it for dramatic effect. They also lined new arched vaults above the trusses with a seamless acoustical plaster system. Wide planks of antique heart pine surface the concrete floors in the main dining room and the new stable-size structures built for private dining rooms, while Pompignon limestone paves the halls and vestibules. Stainless steel gives a cool glint to the inner surfaces of the deep portals between the rooms, yet the assortment of antiques and simple stained white oak furniture create a sensuous if pared down ambience.

Commentary

The pastoral setting of the renovated barns is handsomely dramatized by the procession of spaces. Both architectural firms have inserted the new elements for exterior and interior spaces with a straightforward simplicity that allows the Modern elements to stand out in bold relief against the older backdrop. This dialectic often brings Carlo Scarpa's Modernist interventions in Italy's Veneto to mind, albeit executed with American forms and materials. The restaurant interiors (along with the cuisine) instantly suggest that an inn would offer an ideal addition to the center. Yet this idea may be viewed with trepidation: Since the center is intended to bolster a simpler life—farming—some may fear that attracting more high-end tourism would paradoxically encourage more development in the surrounding area. ■

Pierson College

New Haven

2

KIERANTIMBERLAKE ASSOCIATES ADDRESSES YALE UNIVERSITY'S NEEDS IN THE PRESENT WHILE RESPECTING ITS PASSION FOR TRADITION.

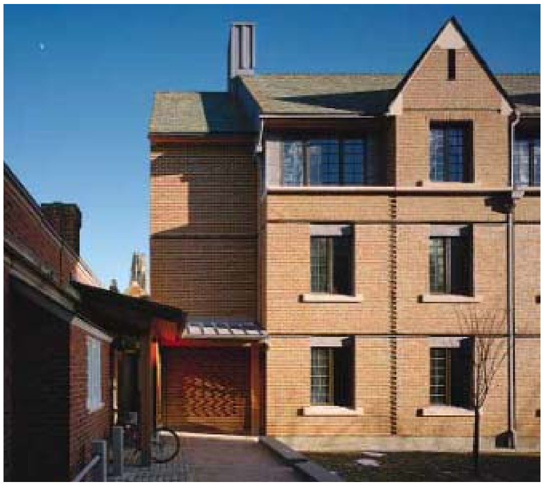
By Sara Hart

Architect: *KieranTimberlake Associates—Stephen Kieran, FAIA, design partner; Christopher MacNeal, AIA, associate in charge; Jamie Unkefer, AIA, project manager; Marceli Botticelli, Brian Carney, Kannikar Peterson, Karl Wallick, Project Architects; Andrew Evans, Castor Kong, Elisheva Levi, Rachel Mainwaring, Miharu Morimoto, Mark Rhoads, Kathy Speicher, Matt Sauer, Adrienne Swiatocha, Kurtran Wright, design team*
Client: *Yale University*
Consultants: *BVH Integrated Systems(m/e/p, fire protection); CVM Engineers (structural); Towers/Golde (landscape); Tigue (lighting); Metropolitan Acoustics (acoustics)*

Size: *165,500 square feet*
Cost: *Withheld*
Completion date: *September 2004*

Sources
Doors: *Duratherm (Upper Court addition); Steelcraft (metal)*
Windows: *Marvin (wood); Moduline (aluminum)*
Elevators: *Holtz*
Acoustical ceilings: *Tectom*
Resilient athletic flooring: *Dodge-Rugepol; American Harlequin*

For more information on this project, go to Projects at **www.architecturalrecord.com**.



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By the first part of the 20th century, Yale had gained renown as an elite university. Such status spurred aggressive building, expanded curriculum, and increased enrollment. Concerned alumni and administrators sensed the atmosphere was becoming increasingly impersonal and, therefore, detrimental to students. They moved to organize the campus into a network of smaller, self-contained residential colleges, loosely based on the model of Oxford and Cambridge. They reasoned that an intimate, domestic environment would not only be more conducive to academic achievement, but promote emotional and social well-being.

Architect and Yale alumnus James Gamble Rogers (1867–1947), who had already designed many of the academic buildings, was tapped to carry out this new direction. Rogers designed 10 of the 12 residential colleges at Yale, including Pierson.

The college, on the western edge of Yale's undergraduate residential campus, is an excellent example of Rogers's command of scale, proportion, and detail. Completed in 1933, the college occupies five floors plus a basement, arranged in wings containing student housing around a large courtyard. The exteriors are Georgian Colonial brick and stone with slate roofs over a concrete-encased steel structure.

Program

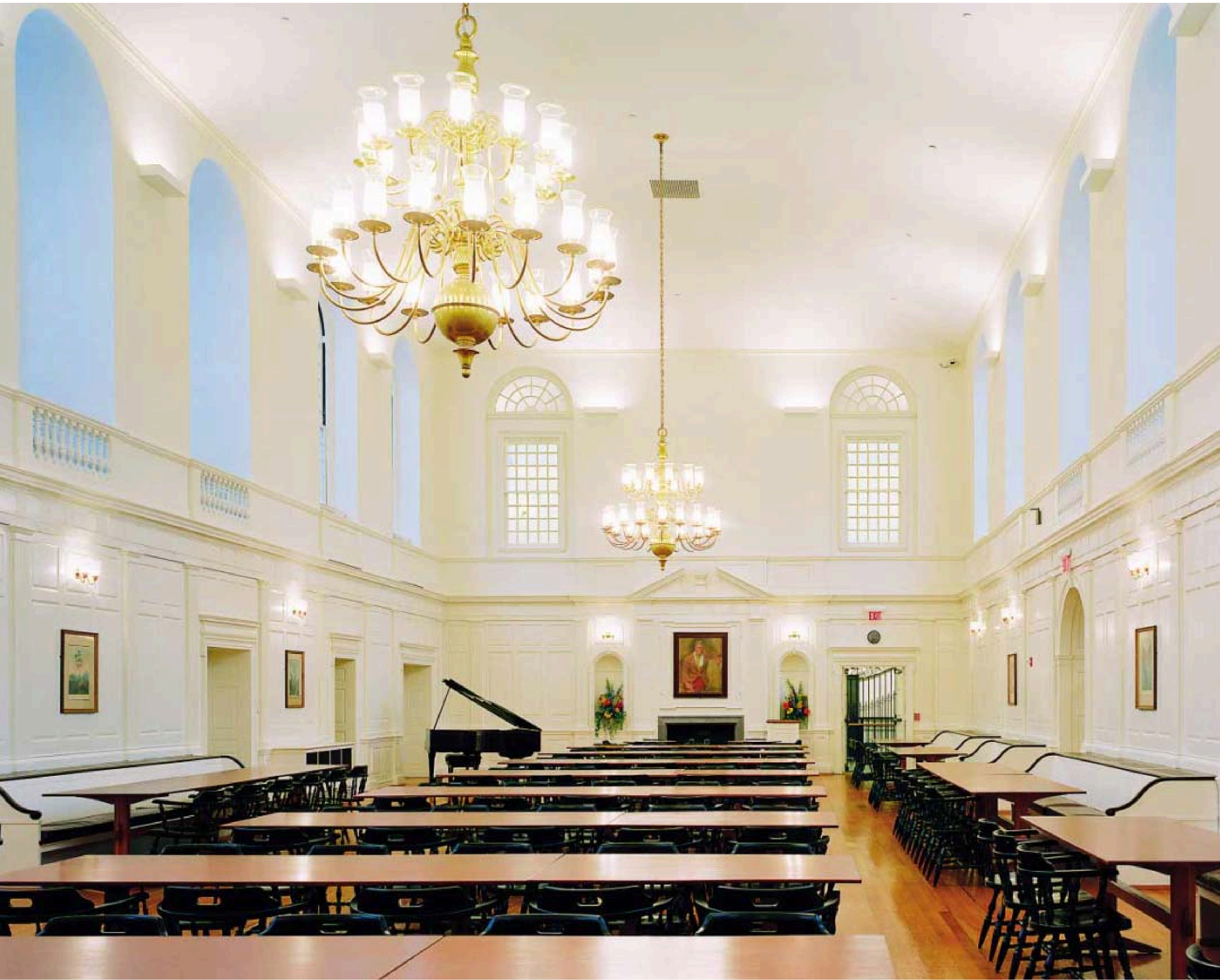
The university commissioned Philadelphia-based KieranTimberlake Associates (KTA) to tackle a daunting program of tremendous scope. The program included life-cycle renovations, utility upgrades, compliance with life-safety codes and accessibility regulations, dorm-room upgrades and additions, and improvement to the dining services and student-activity areas. The scope was not limited to the buildings. The program called for a new landscaped walkway and courtyard along the previously undeveloped east side of the college.

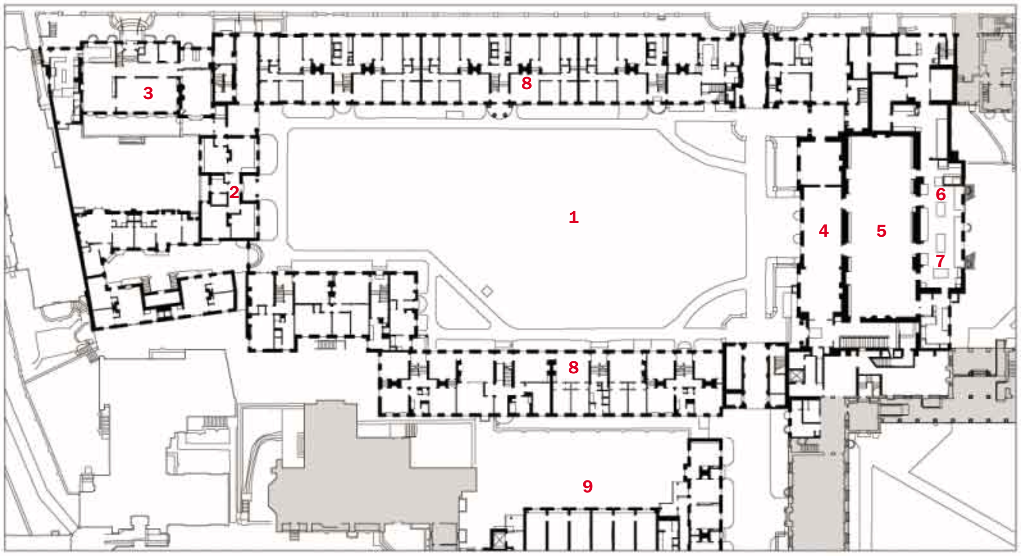
Solution

First of all, many of the most difficult solutions are invisible. In the areas to be preserved, such as the dining hall and library, KTA dismantled the interiors; stored the woodwork; upgraded the mechanical, electrical, and fire-safety systems; and then reinstalled the finishes as if nothing had been disturbed.

Other changes are more obvious, and required as much finesse as skill. "In Modernism, a preconceived design system does not readily accommodate the special circumstances or unexpected dis-

In their renovation of Pierson College (opposite, left), the architects dismantled the dining hall (below), upgraded the HVAC systems, and relocated the servery to the adjacent pantry (right). They infilled the Upper Court with a three-story addition of suites, accommodating 24 beds (opposite, right).





FIRST FLOOR

1. *Courtyard*
2. *Administration*
3. *Master's house*
4. *Common room*
5. *Dining hall*
6. *Kitchen*
7. *Servery*
8. *Student suites*
9. *Upper Court addition*

The original library (left) was dismantled, the systems upgraded, and the paneling reinstalled. At the same time, the architects converted two squash courts into an expansion that provides more study cubicles and a meeting room (opposite, bottom).

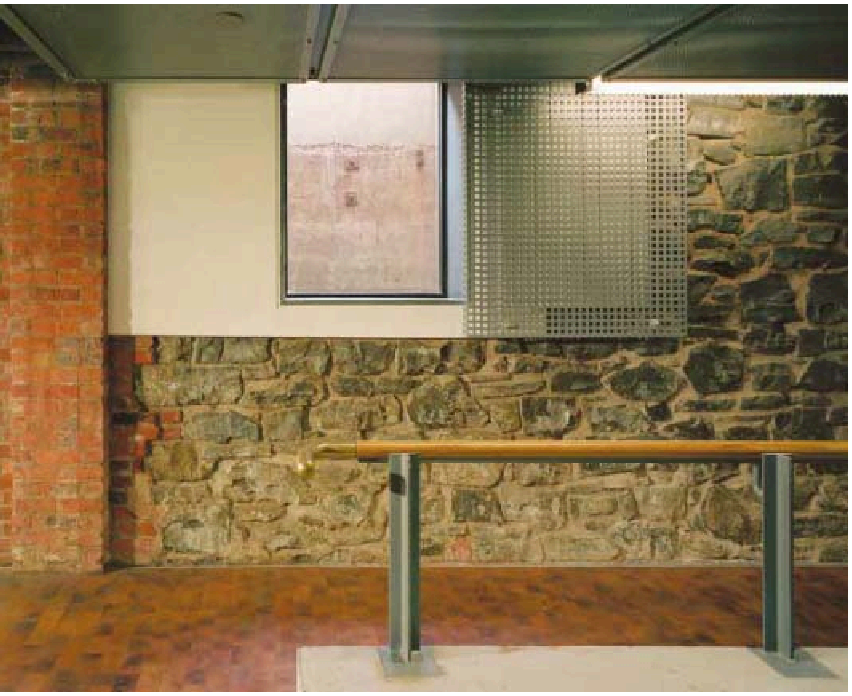
coveries that are inevitable in historic buildings," explains KTA principal Stephen Kieran. "The effort that goes into inserting new programs into existing structures teaches the Modernist to take advantage of those picturesque opportunities when they're revealed." Kieran's observation became a guiding design principle, as the firm went about converting squash courts and basement spaces to social and recreational uses, including exercise facilities, aerobics/dance space, and music practice rooms. Additional squash courts on the second floor were converted for use as an annex to the existing library with computer facilities.

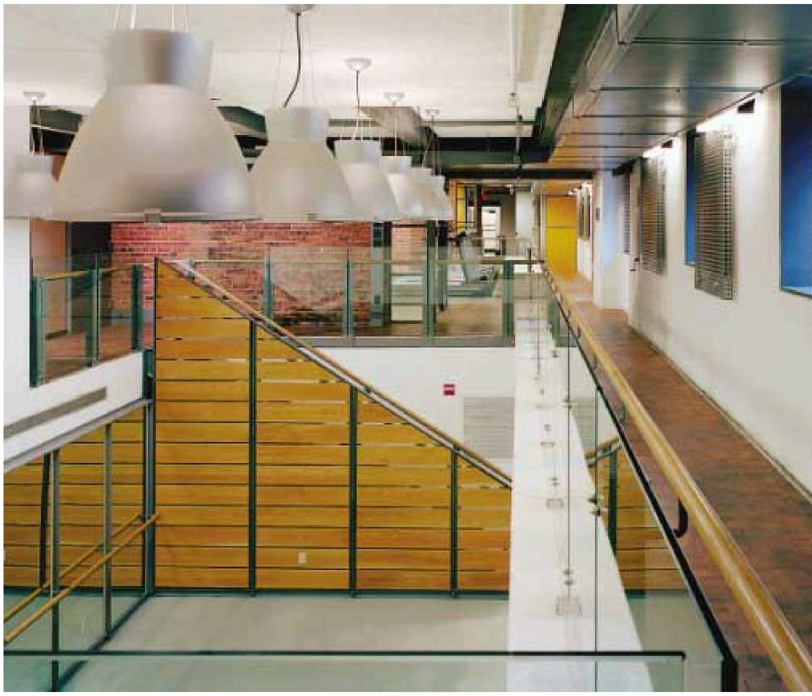
To alleviate the bed shortage, KTA renovated existing suites by combining two adjacent suites into one, annexing closet space into the bedrooms, and consolidating circulation. They designed a three-story, 11,500-square-foot addition on the Upper Court between the college quadrangle and the University Theater. The addition provides a total of six suites, accommodating up to 24 beds.

Commentary

It takes vision and confidence to seek out the unpredictable, especially after completing the tedious upgrade of the building systems. When time came to extract form and function from the derelict basement and other awkward interstitial spaces, a lot of architects would have chosen the path of least resistance—patch and paint. Instead, KTA saw the opportunity for artistic expression, especially in the basement's gloomy labyrinth of steam pipes, electrical conduits, and makeshift storage. They added and subtracted layers of materials, creating a palimpsest of past and present.

When possible, the stone foundation was left exposed. Plasterboard sections formed transitions between materials, producing a series of collages throughout the corridors. Sealed shafts were opened to provide orientation to the outside as well as light. Rogers would have admired their boldness, especially since it kept him in the picture. ■





Renovation of the basement (above two) required relocating the steam tunnels to the exterior walls, creating light wells everywhere possible, and peeling back the layers while applying new ones to create a collage of textures surveying the building's past.

78 Derngate
Northampton, England

3

JOHN MCASLAN RESCUES A FORGOTTEN WORK OF CHARLES RENNIE MACKINTOSH FOR A RARE HOUSE-MUSEUM WITH AN ADJACENT GALLERY.

By Hugh Pearman

Architect: *John McAslan + Partners—John McAslan, principal; Adam Brown, director; Richard Ellis, Andrew Hapgood, Kerstin Hartmann, Sarah Jackson, Ian McChesney, Marcos Rosello, Ryan Von Ruben, Anna Wagner, Pat West, team*
Client: *The 78 Derngate Northampton Trust*
Consultants: *Mary Schoeser (fabric and textiles); Allyson McDermott (wallpaper); Jake Kaner of Buckinghamshire Chilterns University (furniture); Crick Smith Conservation (paint analysis); Pat Dillon of the University of Wolverhampton (carpets); Jampel Davidson & Bell (structural); Rykba (m/e/p)*

Size: *3,500 square feet*
Cost: *$1,774,437*
Completion date: *Fall 2003*

Sources
Glass cabinets: *CSG*
Carpet: *Avena Carpets*
Lighting: *Erco*
Stone floor: *Stonell*
Linoleum flooring: *Forbo Nairn*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

Northampton, a large industrial market town in the English Midlands, is the traditional center of the English shoemaking industry. It is well off the tourist trail, despite being only an hour by train from London. Yet recently it has become an unlikely destination for architectural pilgrims, who come by the thousands to see a rediscovered curio—a tiny row house, 78 Derngate, just restored by architects John McAslan + Partners. The last known built work of the Glasgow architect Charles Rennie Mackintosh, 78 Derngate has an importance far outweighing its modest size. Though Mackintosh was a near-contemporary of both Frank Lloyd Wright and Sir Edwin Lutyens and reflects the influence of both, he was the first of the three to die, at age 60 in 1928, and never built another project after this.

Mackintosh, who was living in London at the time, took on the small house conversion for an up-and-coming local industrialist, Wenham Joseph Bassett-Lowke, in 1916–17. So unassuming is the house from the street that it is easy to walk straight past it. Mackintosh changed little on the front elevation of this early-19th-century brick-built house, apart from a relatively subdued but typically organically styled black-painted doorcase, since a local architect had already added a square front window bay. Mackintosh's rear elevation, opening onto a tiny garden still, startles today's visitor: white-rendered, rectilinear, a Modern four-story tower house seems to be grafted onto the original, complete with two deep balconies, one above the other.

Inside, Mackintosh turned the conventional straight-ahead staircase 90 degrees to divide the house crossways. Despite being no more than 16 feet wide, the front lounge hall is a tour de force, finished in black, with a stenciled pattern of yellow triangles representing a grove of trees, and stained-glass inserts in a similar pattern. The ground-floor rear dining room, though more conventional, features a wall of Mackintosh's built-in furniture and lamps, incorporating a fireplace in white and pale green tiles. Upstairs, in the guest bedroom, an Op Art pattern of narrow fabric stripes runs up the wall, across the ceiling, down the curtains, and back along the bed covers.

Bassett-Lowke, a successful maker of toys such as model trains and ships, proved a knowledgeable client for the exotic Mackintosh with his Vienna Sezession connections—although it appears that ultimately Bassett-Lowke's wife put her foot down and demanded less-outré interiors in some of the rooms. Indeed, they called Mackintosh back in 1919 to provide a softer, less-dramatic treatment for the main reception room. But, following years of neglect and changing ownership, the house has now been restored to its original 1916–17 appearance.

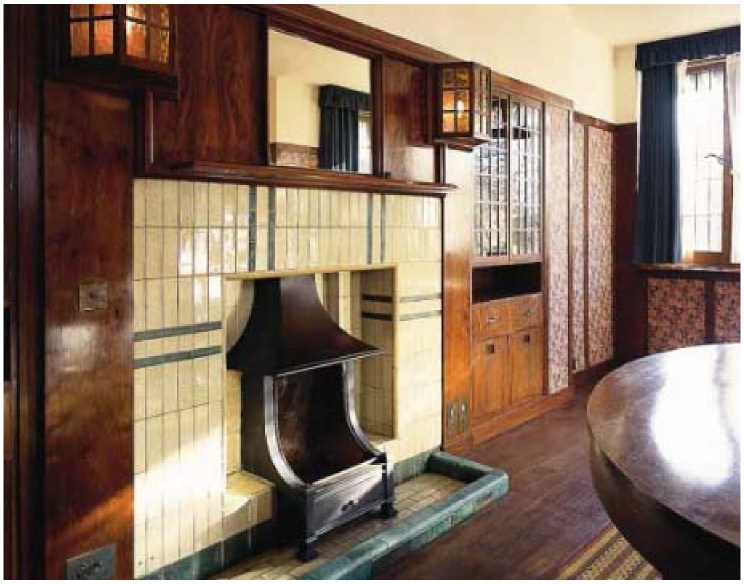
Program

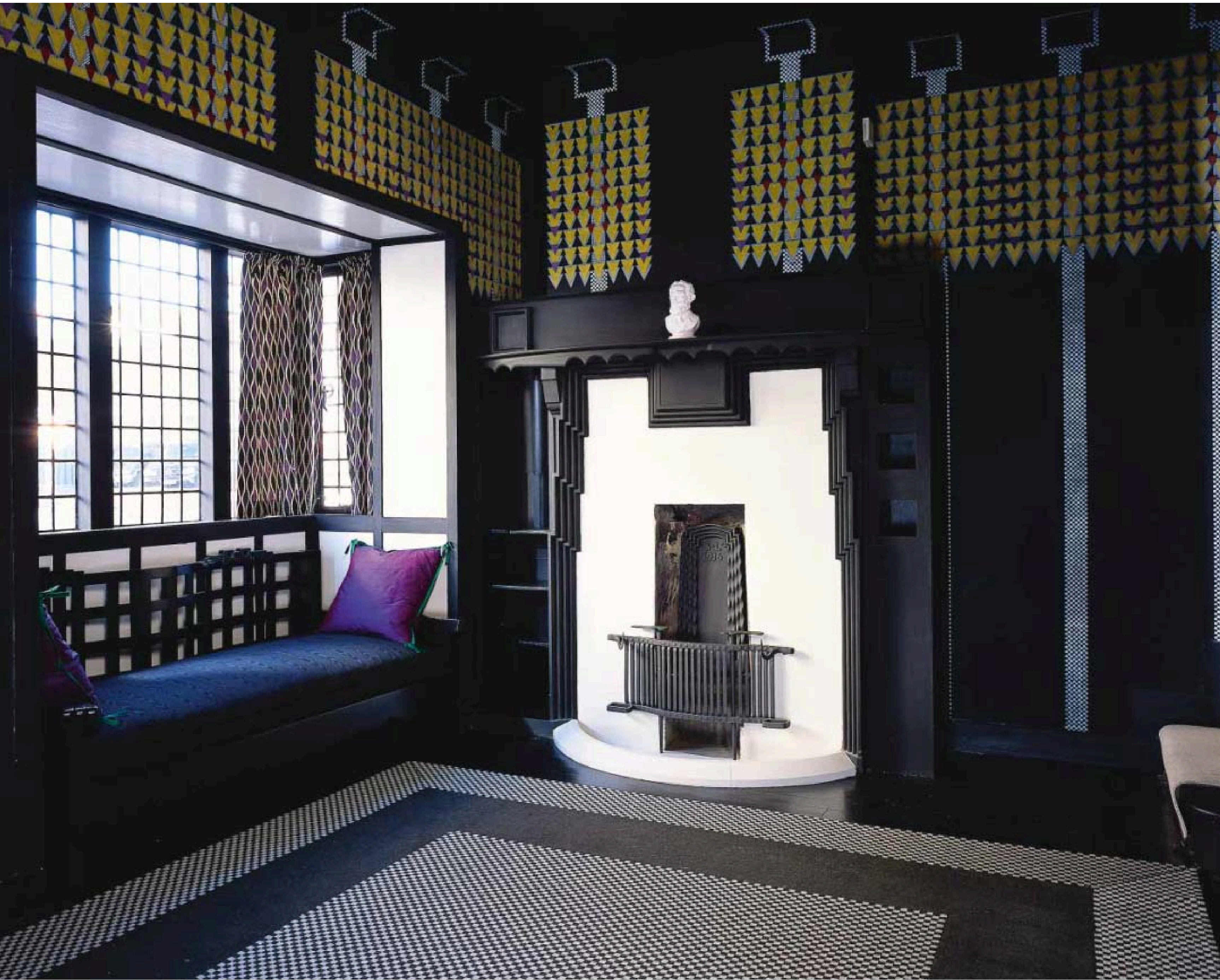
The 78 Derngate Trust, a voluntary organization that created the house-museum, also bought the town houses at 80 and 82 Derngate to provide circulation, display, and administration space for the Mackintosh building. The group also

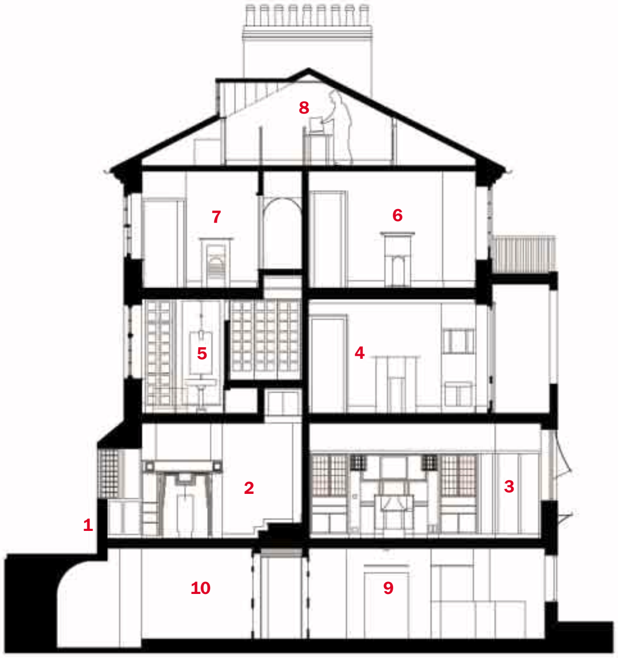
Hugh Pearman, the architecture and design critic of The Sunday Times, *London, is author of* Airports: A Century of Architecture *(Abrams, 20004).*

PHOTOGRAPHY: © RICHARD BRYANT/ARCAID, EXCEPT COURTESY HUNTERIAN ART GALLERY, UNIVERSITY OF GLASGOW (TOP)

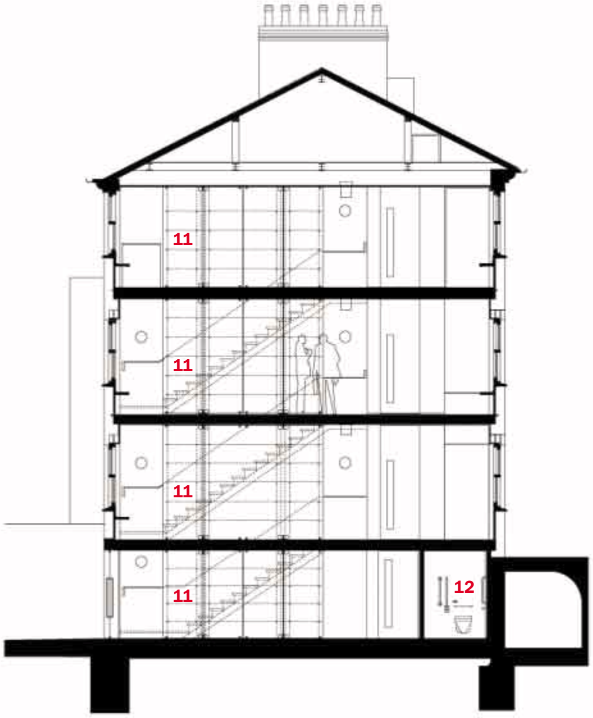
Mackintosh had turned the stair 90 degrees in the lounge hall of the 1820s town house (below and right) to create a cross wall between it and the dining room (far right). McAslan restored the dark wood panels, fabrics, and decorative paints, and replicated furniture for key rooms in the house by analyzing paint and fabric samples and studying old photographs.



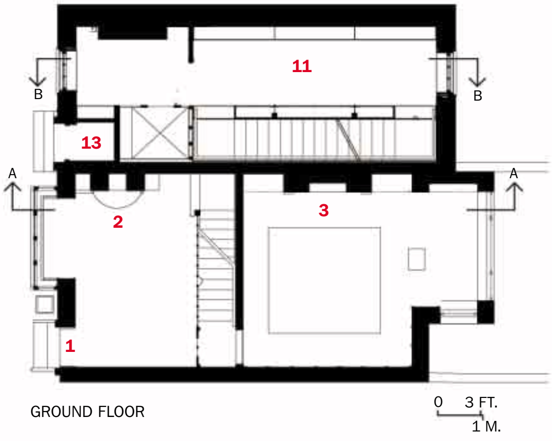




SECTION A-A

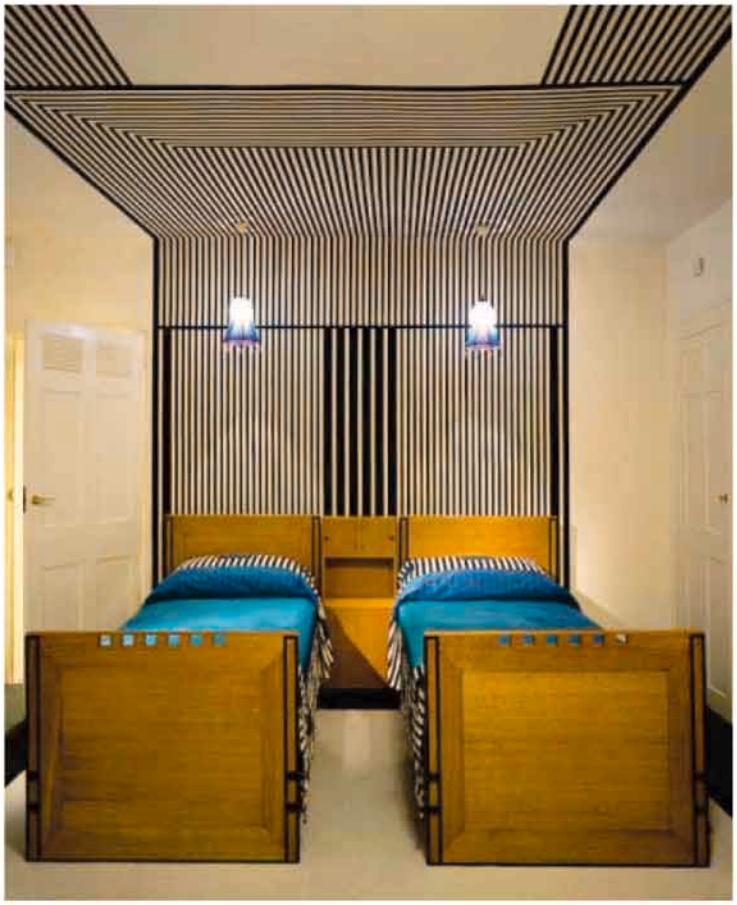


SECTION B-B

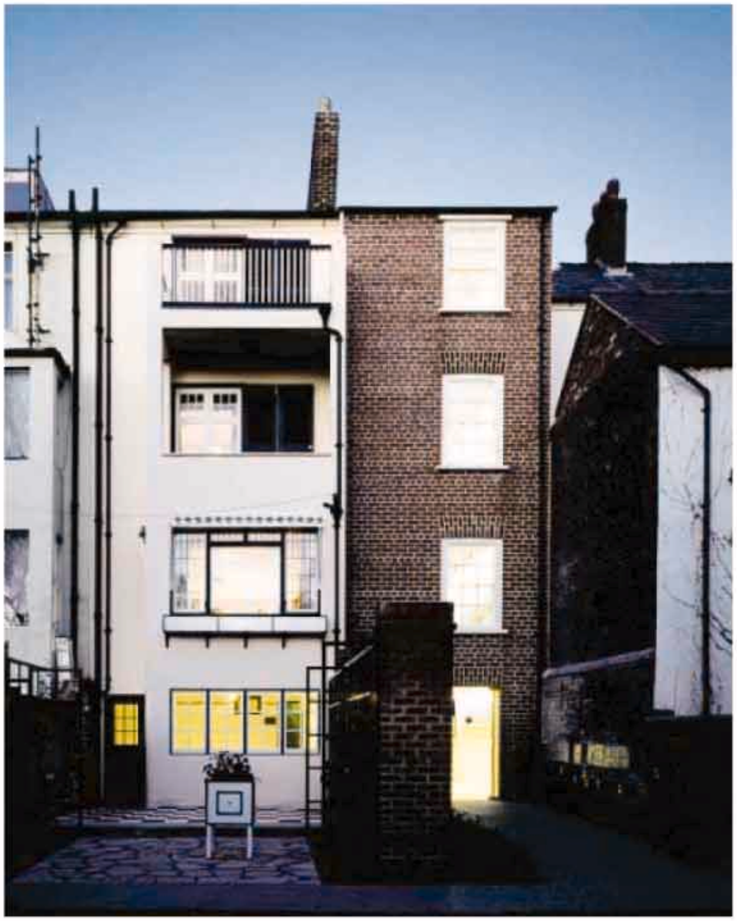


GROUND FLOOR

1. *Original entrance*
2. *Lounge hall*
3. *Dining room*
4. *Main bedroom*
5. *Bathroom*
6. *Guest bedroom*
7. *Study*
8. *Maid's room/library*
9. *Kitchen*
10. *Plant room*
11. *Exhibition galleries*
12. *Disabled bathroom*
13. *New entrance*



Since the furnishings at 78 Derngate were dispersed after Bassett-Lowke moved out, and because buying back all the pieces would be too expensive, McAslan and his team replicated them in key rooms, such as the guest bedroom (above). Here, too, satin ribbons are applied to walls and ceilings as part of the reconstruction of the original striped decoration. The now-renovated rear facade (right) was designed by Mackintosh in 1917 for the 1820s terrace house.



hired the architect John McAslan, Glasgow-born and Edinburgh-trained, who has long been an enthusiast of Mackintosh's work—which is why his large and successful London practice took on this small but highly significant project. At this point, McAslan has completed the restoration of 78 and extensive remodeling of 80 Derngate, while funds are being raised for 82 to provide offices and more visitor facilities, such as a café.

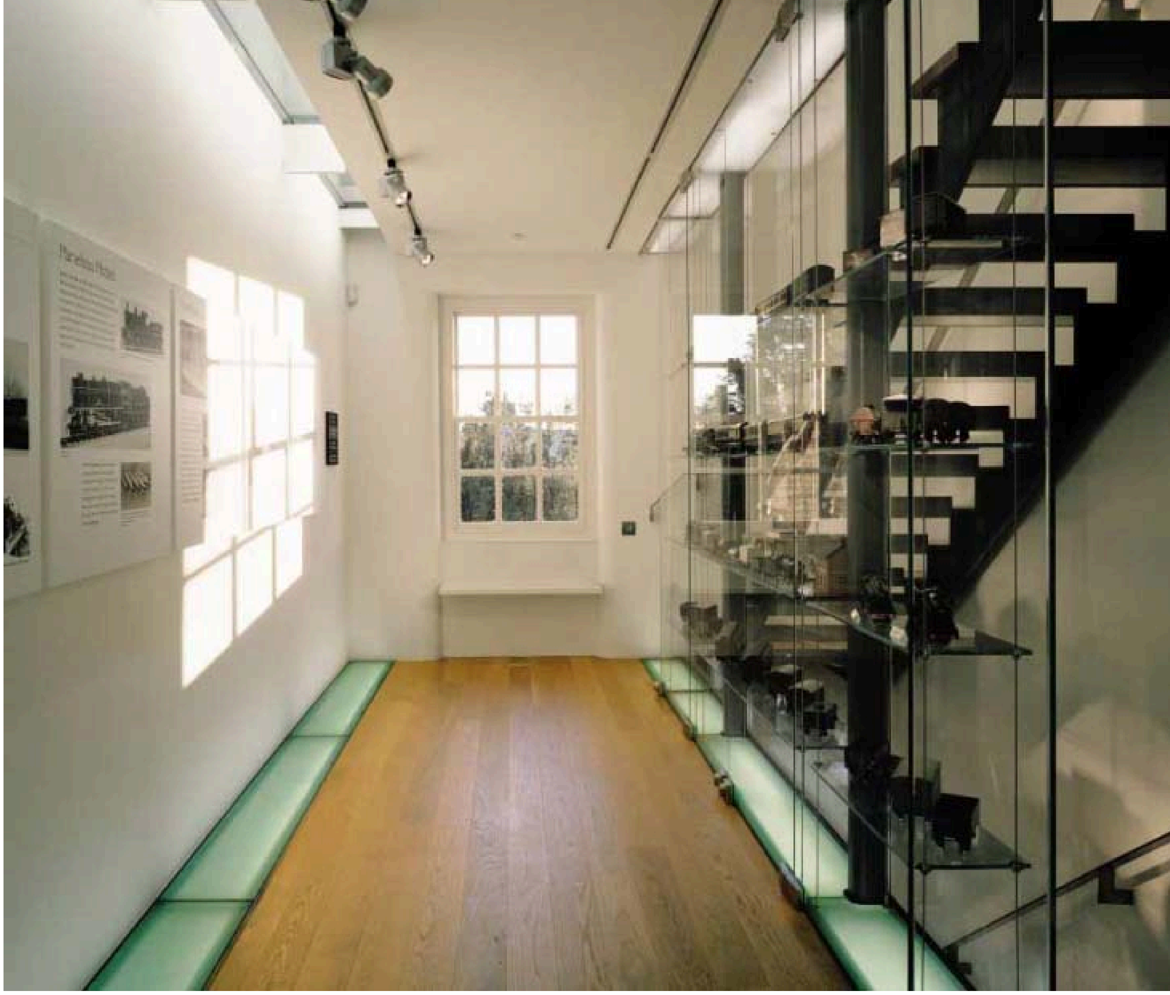
Solution

Forensic restoration of the Mackintosh interiors and the exact replicating or tracking down of lost furniture and textiles was crucial, since the original furnishings had disappeared over the years. McAslan kept the remodeled addition at 80 Derngate very low-key, using good, plain materials and eschewing any stylistic reference to Mackintosh. His insertion of a straightforward stair and elevator into this narrow house, with glass display vitrines rising the height of the stairs, resolves the difficulty of circulation to 78 Derngate with admirable restraint. Even so, no more than 30 people can fit into the Mackintosh house at any one time.

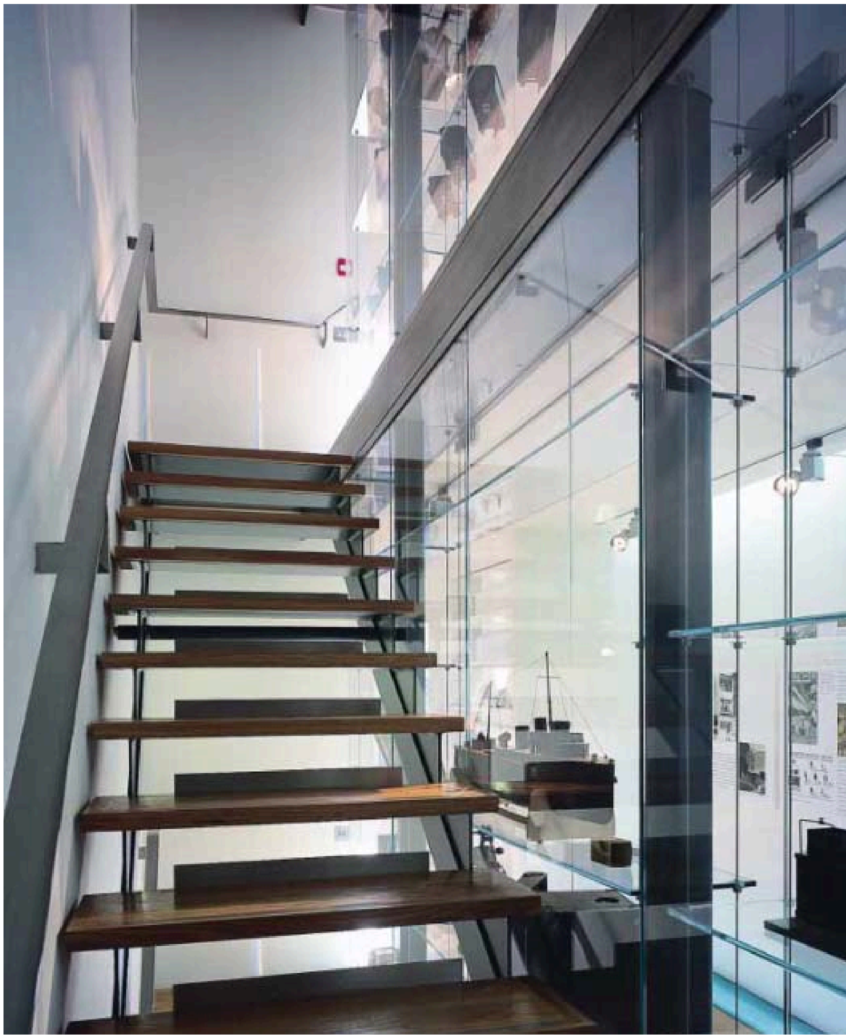
Commentary

The completed ensemble succeeds in being comfortable for visitors in spite of the small size. It succeeds in its intention of suggesting that you are a privileged visitor to Bassett-Lowke's extraordinary house around 1917. The Trust expected about 6,000 visitors in its first March–November 2004 season. Yet 16,250 turned up, some from as far afield as the United States, Australia, and Japan.

The fascination is understandable. Mackintosh's last building—and his only one outside Scotland—has a unique place in the history of domestic architecture and the Arts and Crafts movement. And for McAslan, both the restoration and the low-key addition is a deferential tribute to one of his heroes. At the same time, the intended work on the third house, 82 Derngate, is clearly necessary to provide a more controlled marshalling of the visitors. ■



McAslan designed a gallery and circulation addition within a gutted town house at 80 Derngate. The Modernist vocabulary of wood, stainless steel, and glass creates a transparent display space extending the height of the building, and edged by stairs. The narrow galleries display material relating to Mackintosh as well as his client, Wenham Joseph Bassett-Lowke, a manufacturer of toys such as model trains and ships.



Hyde Park Bank
Chicago

4

FLORIAN ARCHITECTS TRANSFORMS A GRAND BANKING HALL THROUGH A DRAMATIC PLAY OF MODERNIST AND CLASSICAL VOCABULARIES.

By Blair Kamin

Architect: *Florian Architects—Paul Florian, AIA, principal; Wade Ziperstein, project architect; E. Alper Aydinalp, Gary Hodonicky, Pollawat Petavanich, Robert Sellars, project team*
Client: *Hyde Park Bank & Trust—Timothy O. Goodsell, president*
Engineers: *The Engineering Studio (m/e/p, fire protection); Thorton Tomasetti Engineers (structural)*
Consultants: *Schuler & Shook (lighting); Shen Milsom & Wilke (acoustical); The Grillo Group (graphic design); Integrated Control Experts (technology)*
General contractor: *Power Construction*

Size: *13,000 square feet*
Cost: *$3.5 million*
Completion date: *June 2004*

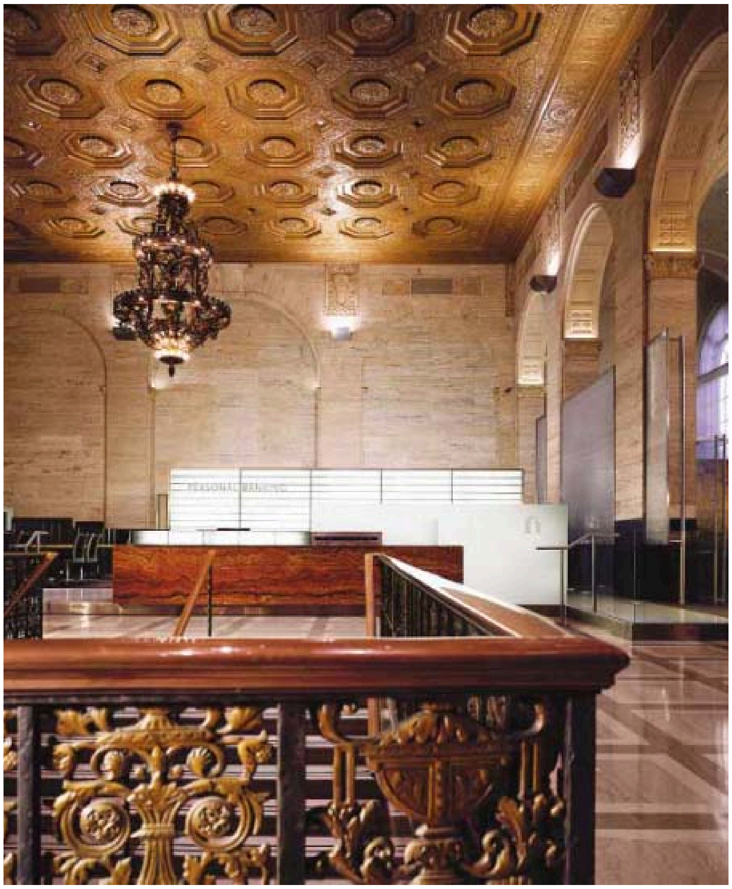
Sources
Glazing and glass doors: *Trainor Glass*
Wood doors: *Oshkosh Architectural Wood Doors*
Window shading: *MechoShade*
Hardware: *Blumcraft; Dorma; Hager; Glynn-Johnson; FSB; CBC America; Hafele*
Acoustical ceilings: *USG*
Paints: *Sherwin Williams*
Furnishings: *Desks Inc.; Bulo; ICF; Vitra*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

At a time when banal little bank branches are spreading across the land like kudzu, the renovation of a grand banking hall is something to celebrate. This is more the case when it is carried out with the precision and panache that Paul Florian, AIA, of Florian Architects brought to Chicago's Hyde Park Bank.

The $3.5 million, 10,000-square-foot project, winner of a 2005 AIA Honor Award for Interior Architecture, was as much a transformation as a renovation. Its rigorous hierarchy of space-defining volumes, translucent planes, and subtle lighting stylishly transports the neighborhood institution into the 21st century, sensitively juxtaposing interactive contemporary features with the gloriously opulent shell of the restored banking hall.

Located on the piano nobile of the main office building in Hyde Park, an affluent South Side neighborhood that also is home to the University of Chicago, the banking hall was designed by Karl Vitzthum in the Italian Renaissance style. It opened in 1929, just in time for the stock market crash. A few years ago, before the renovation began, its condition had suffered a similar plunge. Office partitions chopped up the once-grand space. Fake-leather chairs obscured the ornate stairway balustrade. Uneven lighting and once-gilded ceilings that had turned sickeningly brown made the space dark and impersonal.



PHOTOGRAPHY: © KARANT ASSOCIATES

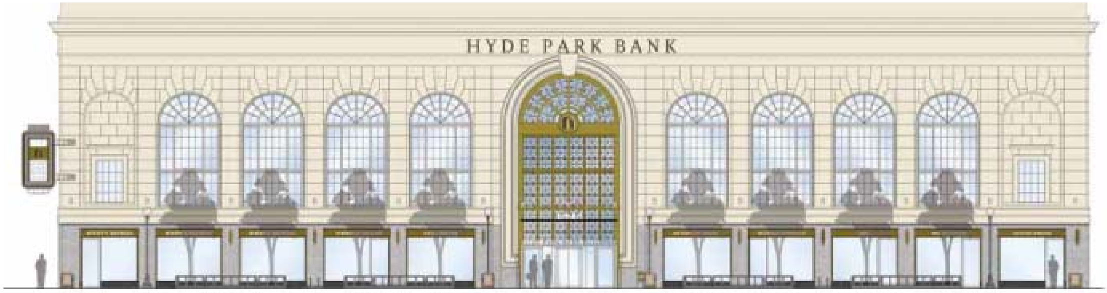
Program

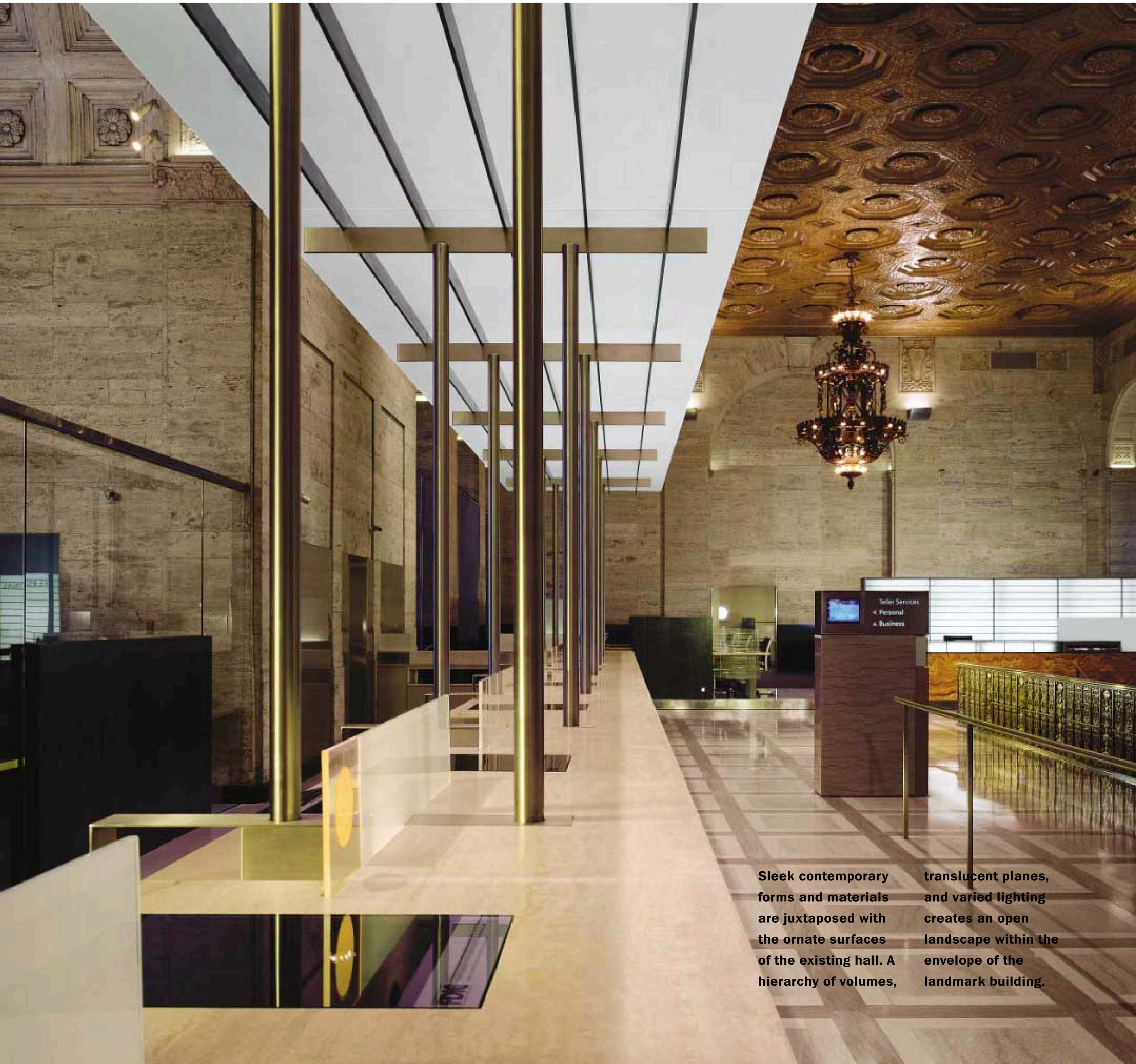
The bank and its aptly named president Timothy Goodsell considered converting the second-floor space to a variety of other uses and moving personal banking to the first floor, where it would be more be accessible to street traffic. But Goodsell wisely realized that the public room of the banking hall would differentiate the main bank amid the profusion of cookie-cutter branches.

Solution

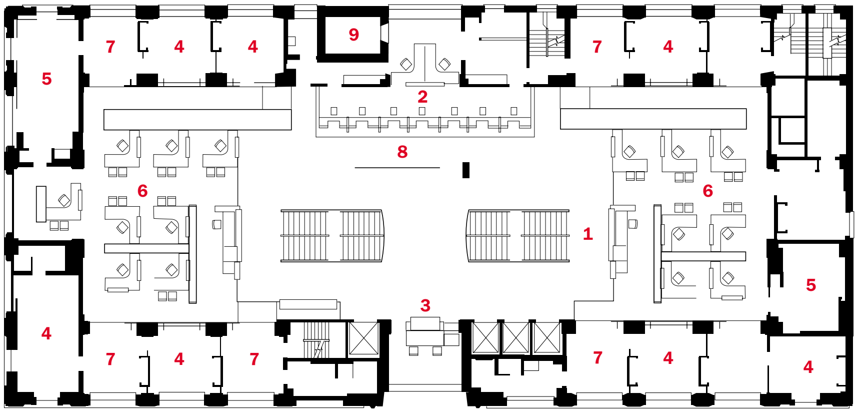
Florian eschewed a radical intervention, opting instead to complement rather than obscure the bank's Classical past. The approach emanated from the desire

RECORD contributing editor Blair Kamin is the Pulitzer Prize–winning architecture critic of the Chicago Tribune.


HYDE PARK BANK

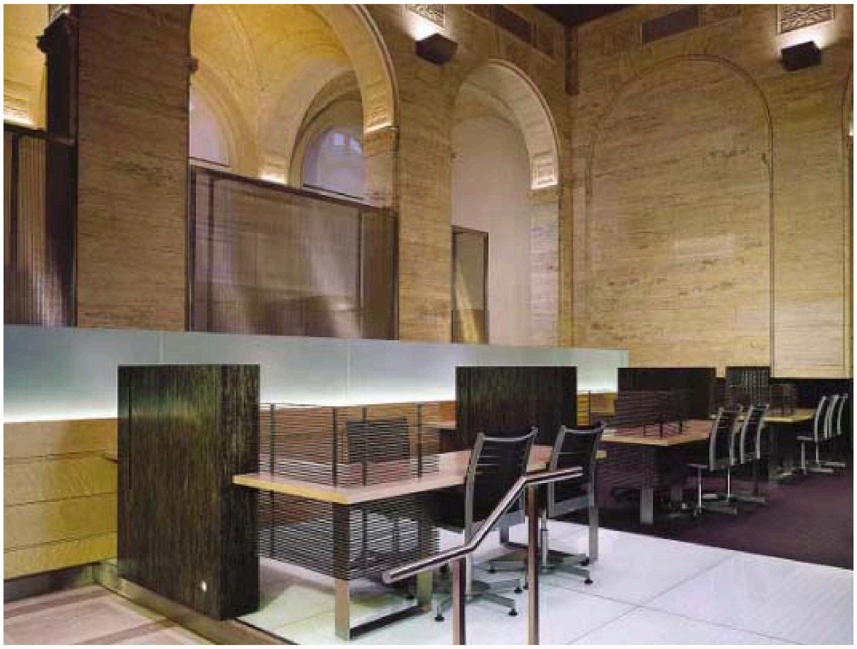

Teller Services
Personal
Business

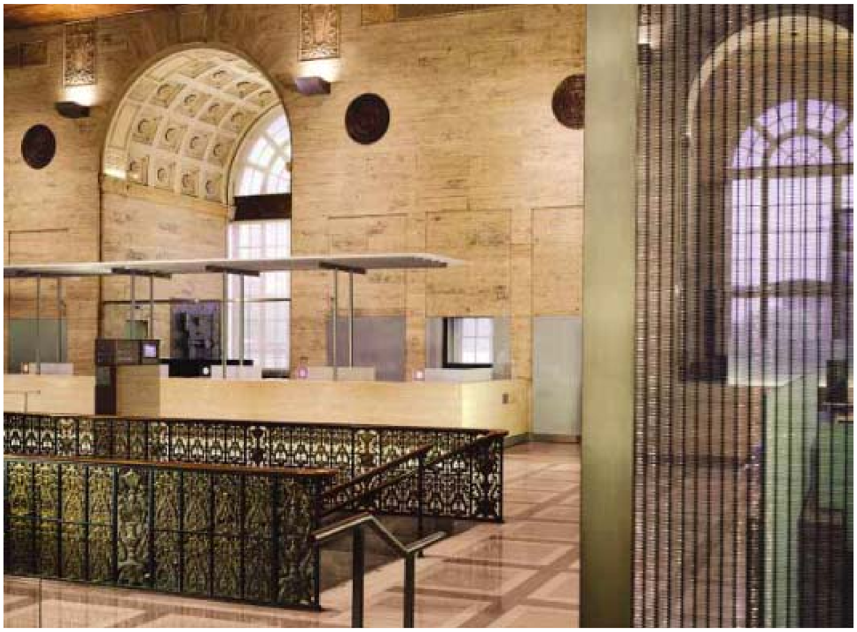
Sleek contemporary forms and materials are juxtaposed with the ornate surfaces of the existing hall. A hierarchy of volumes, translucent planes, and varied lighting creates an open landscape within the envelope of the landmark building.



FLOOR PLAN

1. *Reception*
2. *Teller line*
3. *Internet banking*
4. *Executive offices*
5. *Conference rooms*
6. *Banking officer stations*
7. *Waiting lounges*
8. *Queuing line and kiosk*
9. *Vault*





Translucent glass shields work areas and diffuses light. Shimmering metal screens veil the private offices (left). Monolithic slabs of travertine and maple separate public and private functions, concealing work areas from public view without compromising openness (below).

to adapt the hall to modern banking practices, which stress welcoming, nonintimidating environments. The idea, as Florian said, was to create an uplifting interior, but not one that would require customers to "come in with a three-piece suit."

Florian's design works in two seemingly contradictory yet ultimately complementary ways. One unifies the space; the other divides it or, more accurately, shapes it to a new standard of precision in line with today's banking practices.

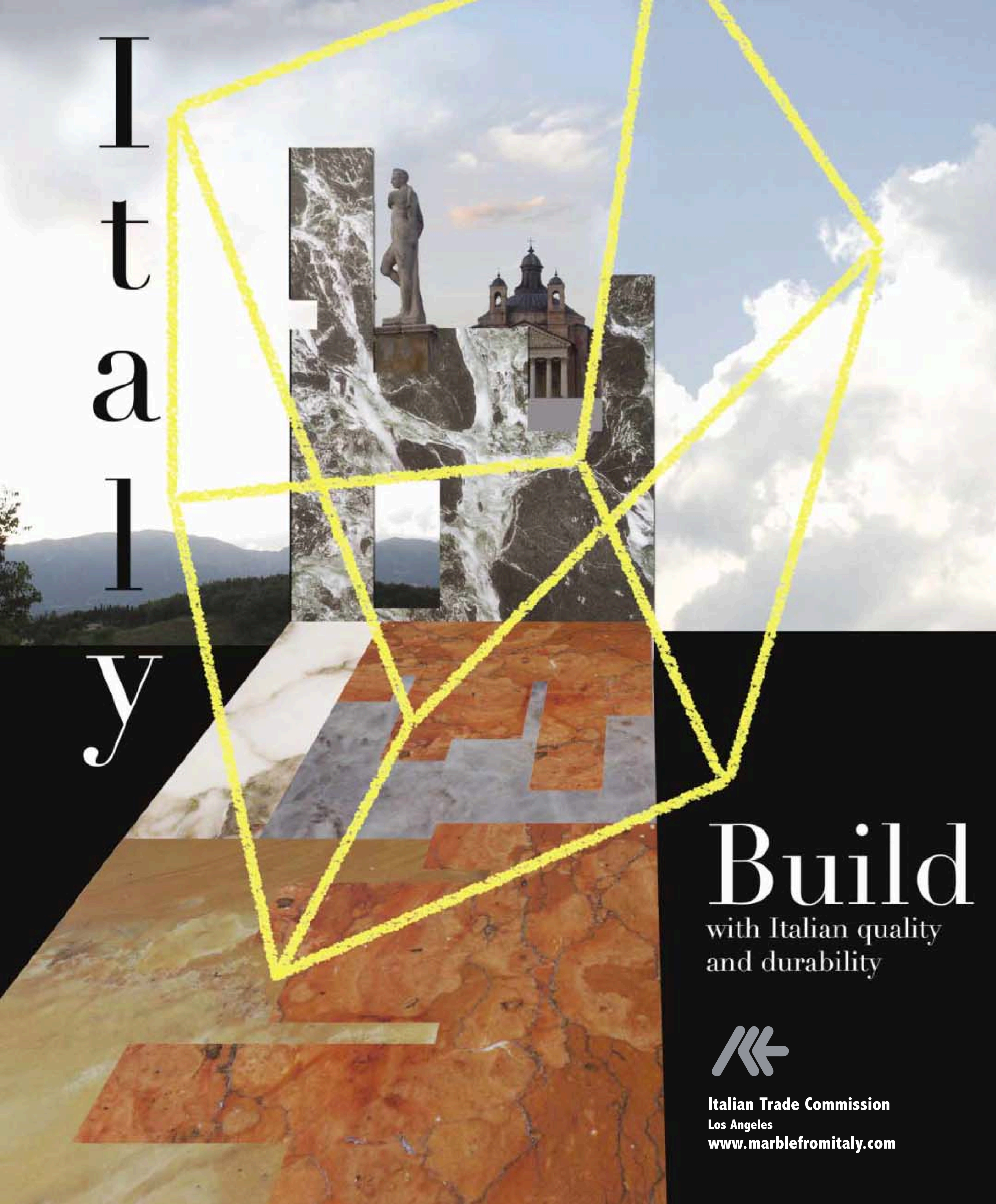
Contemporary sconces and lamps in restored chandeliers reflect indirect light off the regilded ceiling, creating the impression of a single, uninterrupted volume. Work areas, workstation files, and waiting areas are concealed or shifted to the margins of the hall, freeing it of visual clutter.

Florian and his colleagues refined to minimal size the supporting structures for glass walls, the teller pavilion canopy, and the metal-mesh screens that divide the main hall from private offices in adjoining galleries. At the same time, the designers gave the hall a new level of articulation, breaking down the scale of the vast room by placing personal banking and lending services areas on its flanks.

Commentary

While the rich palette of new materials relates well to the old hall, their modern asymmetry and openness serves as an antidote to its overwhelming formality. For example, the new teller pavilion, faced in travertine, blends beautifully with the walls of the old hall and doesn't form a barrier between banker and customer.

Besides the superb renovation of this landmark Chicago interior, the project demonstrates something else: A bank doesn't have to be dumbed down architecturally to be approachable and functional. There is a middle ground between history and freshness, grandeur and intimacy, ceremony and informality. That is a lesson worth heeding for all historic bank halls in an age that seems to value them less and less. ■



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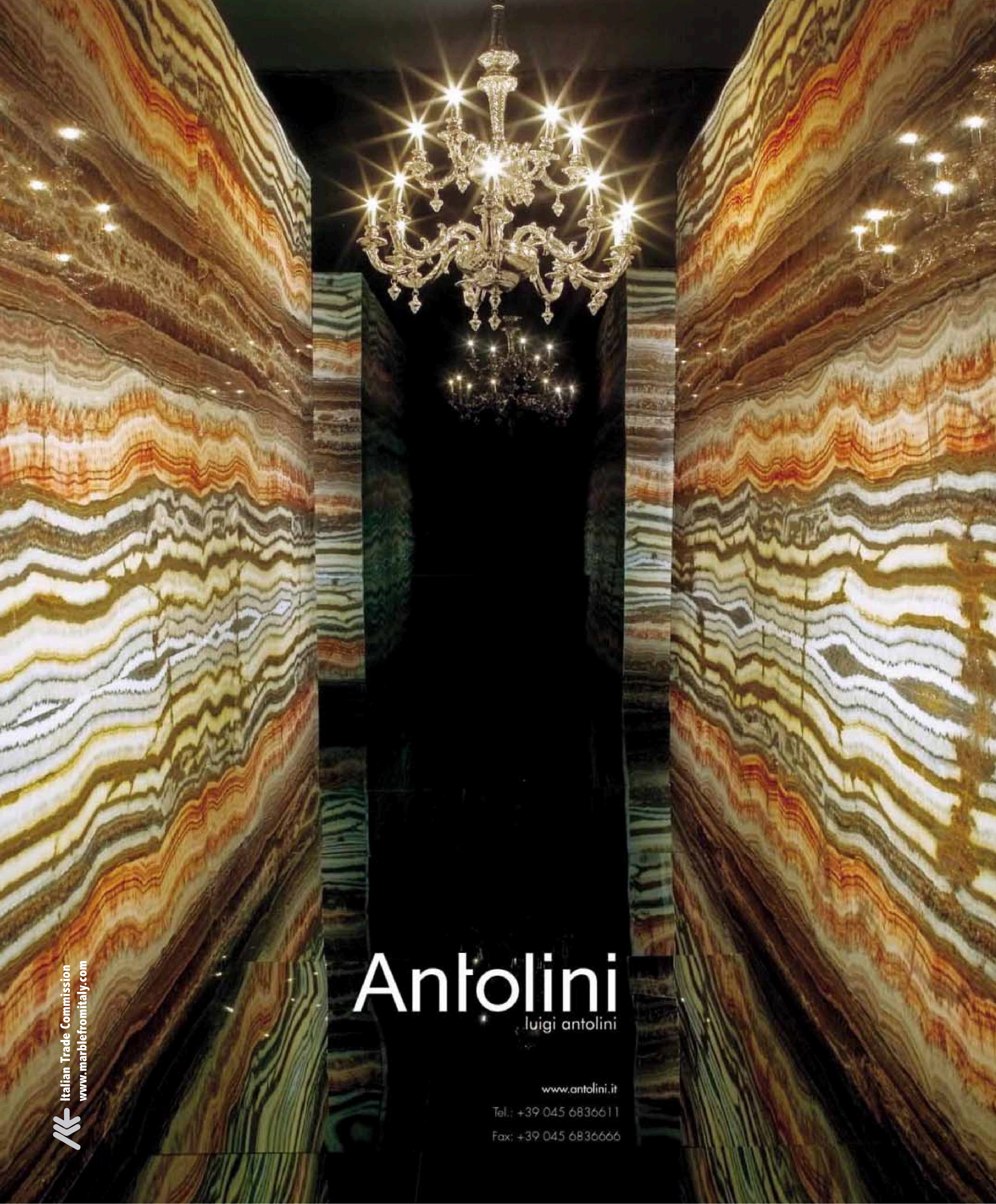

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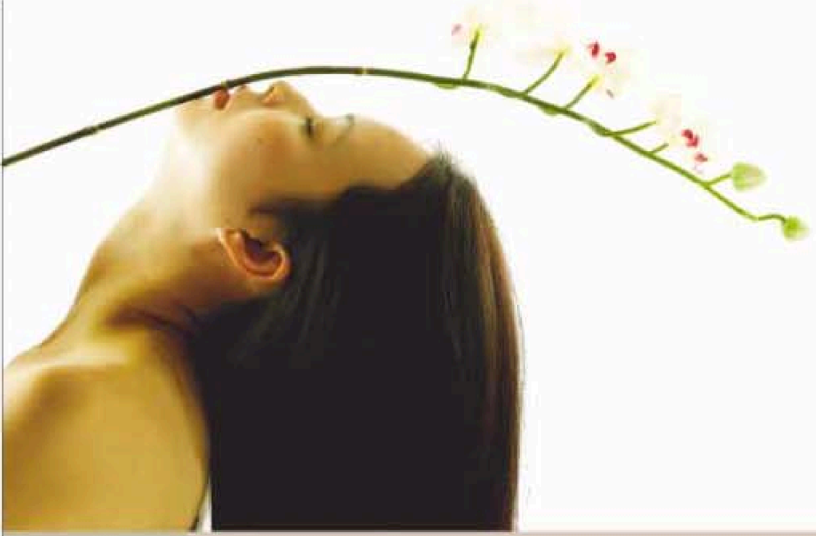

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is worth doing well."
(P. Stanhope)

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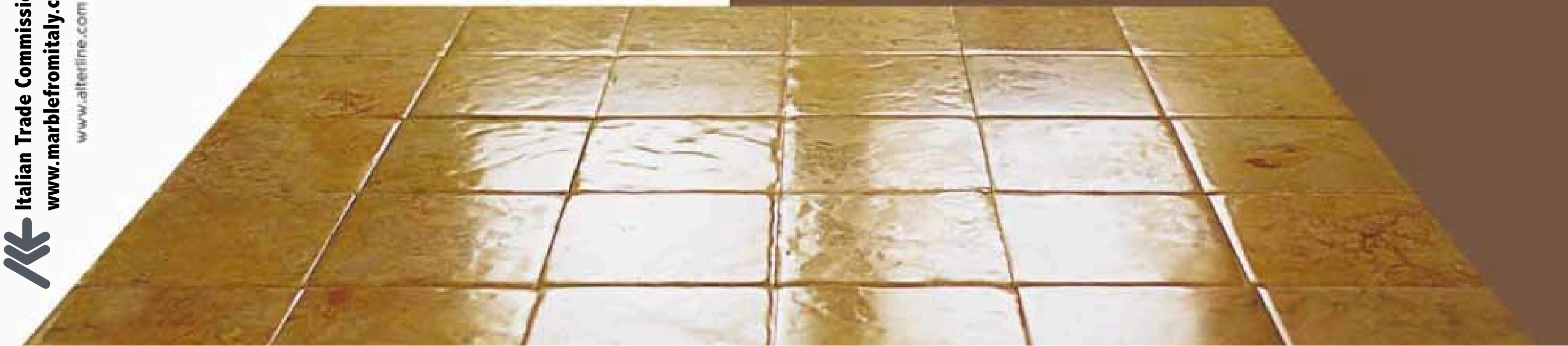

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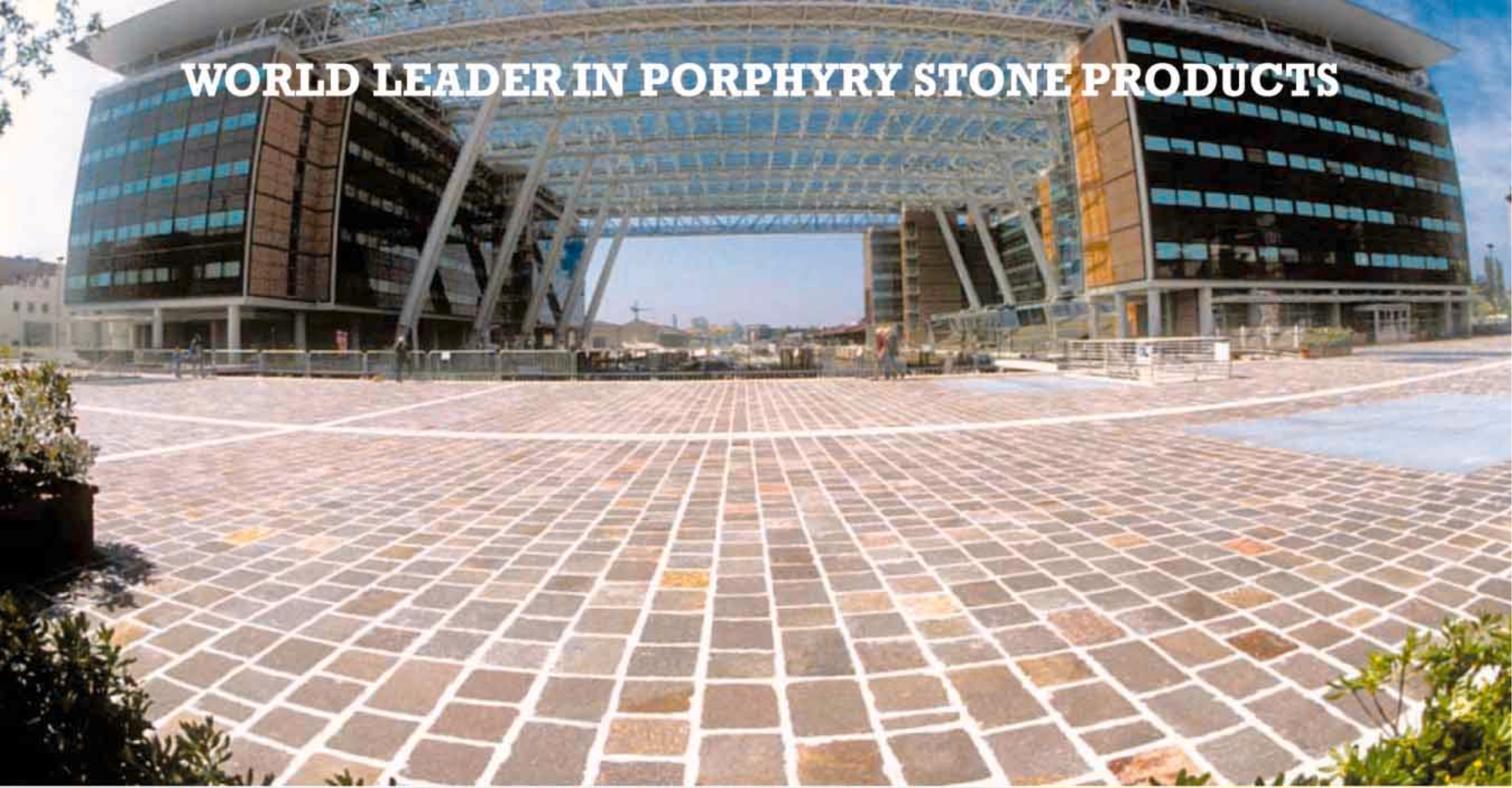
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THE ITALIAN STONE INDUSTRY

Italian stone materials are renowned throughout the world because of their wide range of colors and the size of their deposits. Italy is one of the leading world producers of raw materials, producing over 10.5 million tons of blocks per year, which are quarried and processed by almost 10,000 companies with 60,000 workers who are the most highly skilled in the world. Italy's raw material imports amount to over 2.3 million tons per year with a value of approximately 500 million USD while exports, which are almost all finished products, amount to 3.5 million tons per year with a value of over 2 billion USD.

Italy's modern stone industry has a long tradition behind it and has managed to maintain its world leadership thanks to its highly skilled workers and avant-garde technology. The latter is the result of the close relationship between stone suppliers and machinery manufacturers which has led to positive results such as the production of more and more advanced machinery, the setting up and perfecting of plants already operating, guaranteed continuous assistance, on-site experimentation of new prototypes and remote assistance through the web sites.

This is why Italy is also the world leader in the field of technology with over 400 specialized companies and a work force of around 8000. Thanks to the quality of its technology Italy is the most important country for the processing of stone materials too.

The market demand for stone materials varies a great deal, especially because of color trends, and this means that suppliers must be able to offer the widest possible range of materials. Over the years Italy has developed its role as intermediary and has become a world stone marketplace. In addition to the large quality of local materials Italy trades numerous materials imported from all over the world.

Many Italian stone materials have been on the market for centuries; some are no longer available because of limited resources while others, thanks to new technology and knowledge, have recently been placed back on the market or reintroduced after a period of inactivity of the quarries. Stone materials are divided up into various market categories. This division may not reflect scientific concepts but it is useful for a quick review of the main Italian "litho types".

The term marble is used to define all carbonate materials or other materials with similar physical-mechanical characteristics. The term granite is used to define all siliceous rocks which contain minerals such as quartz and feldspar. Finally, the stone category comprises all materials, generally not polished such as sandstone and porphyry.

Italian marble varieties come in a wide range of colors and textures like the white and veined varieties excavated from the Apuan Alps in Tuscany. The colored varieties include the green materials from Aosta Valley and Lombardy; the beige materials from Puglia (Serpeggiante and Trani), from Sicily (Perlato) and Lombardy (Botticino); the yellow materials such as Giallo Siena and Giallo Reale.

The Veneto region is rich in several types of colored stone such as red (Rosso Verona, Breccia Pernice, Rosso Magnaboschi) and pink (Nembro Rosato) marble; Rosso Rubino comes from Tuscany; Portoro and Rosso Levanto are excavated in Liguria.

Other colored materials include the Tuscan Arabescato, Orobici, Breccia Medicea and Fior di Pesco Carnico.

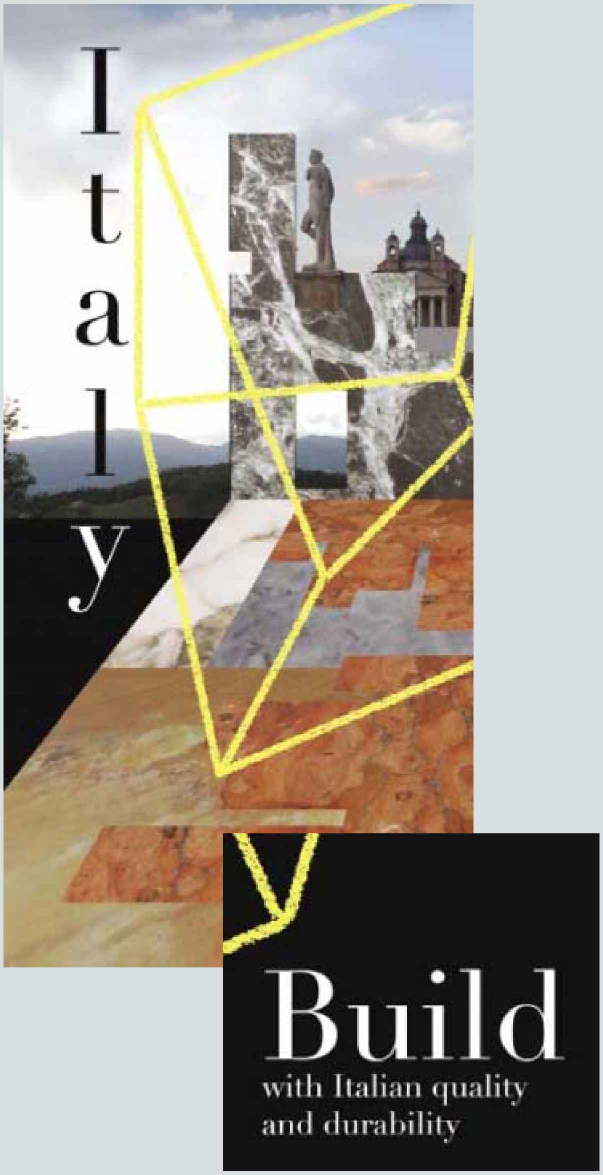
The most important deposits of Travertine, also a well known Italian stone, are found around Tivoli, Rome, Grosseto and Siena, all in central Italy.

Pink and gray Sardinian granites are famous throughout the world for their homogeneity. The pink Baveno granite comes from Piedmont.

The stone category includes the Pietra Serena which is the compact, homogeneously colored gray stone used in the Renaissance palaces and squares in Florence and the Finale, Dorata and Santa Fiora stones.

A few varieties of trachyte, a volcanic rock with brownish-yellowish shades, are also found in the Veneto region. The yellow-colored Pietra di Vicenza is used in many architectural works.

Other volcanic rocks, such as Peperino and Basaltina are quarried in the Lazio region.



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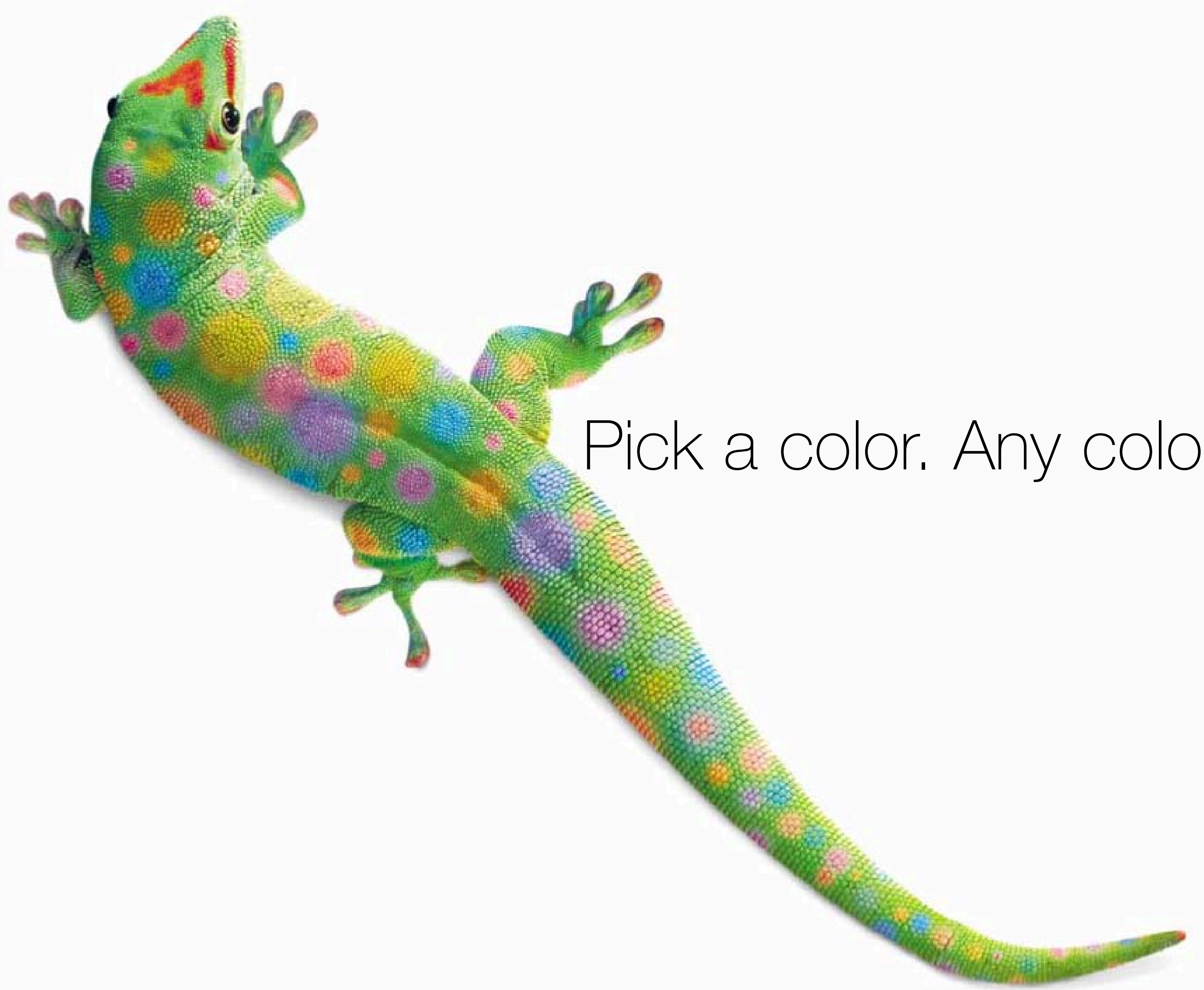

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Architectural Technology

Something old meets something new: Preservation efforts feature updated materials and methods

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A proposed library for Mexico City features sunlit interior courts (164).

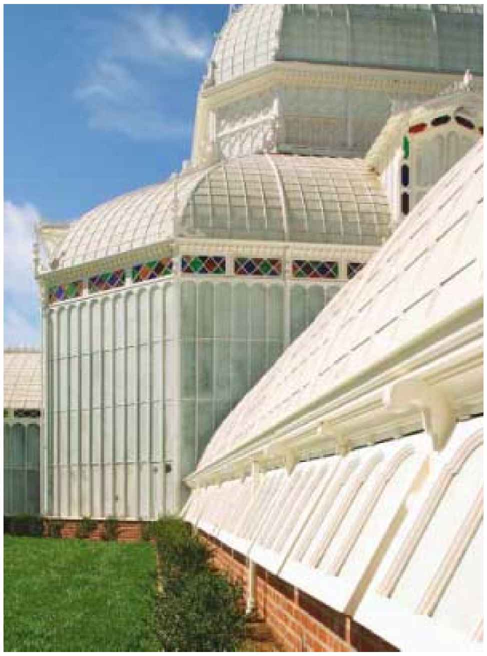
A New York City landmark gets a facelift with a new material (168).

Though we usually focus on publishing new or upcoming work in the technology section, preservation and conservation take center stage this month. Virtually all architects will be asked, at some point in their careers, to adapt or preserve a historic building. As any designer who has endured the scrutiny of review committees will attest, these projects often incite heated passions in local communities, whether they are supporters or protesters.

Nancy Solomon's feature illuminates the efforts of designers who are conserving and upgrading three projects in the U.S.: the Conservatory of Flowers in San Francisco, the oldest public greenhouse in California; the Peabody Institute in Baltimore, where the first music conservatory and public library in the U.S. were established; and the Virginia State Capitol in Richmond, the first public building in America designed in the Classical Revival style, which served as a model for other civic buildings that followed. Widely varying in style, program, and scale, these projects play an important role in our national heritage. The teams of architects and engineers working to save them must address mundane but critical issues like moisture control and preserving old materials. Their solutions show flair and finesse.

The second feature takes us halfway around the world to Iraq, where years of scarce resources and inadequate maintenance have endangered thousands of ancient buildings, monuments, and archaeological sites. Recently, a multinational team of conservation experts has formed to help stem the tide of damage. In a few years, it is hoped, Iraq will be able to track and manage all its historic resources using a GIS database.

Finally, in Tech Briefs, we bring you up to date on a project nearly 20 years in the making—replacing the terra-cotta at Shepard Hall, a landmark building at City College of New York. *Deborah Snoonian, P.E.*



(149).

PHOTOGRAPHY: © DAVID WAKELY PHOTOGRAPHY (RIGHT); COURTESY ERIC OWEN MOSS ARCHITECTS (TOP LEFT); COURTESY STEIN WHITE NELLIGAN ARCHITECTS (BOTTOM LEFT)

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Giving Old Buildings a Reason to Live

USING THE LATEST HIGH-TECH TOOLS, PRESERVATION ARCHITECTS FIND THE RIGHT BALANCE BETWEEN CELEBRATING A BUILDING'S TREASURED HISTORY AND ALLOWING IT TO LIVE ON INTO THE FUTURE.

By Nancy B. Solomon, AIA

Every city has its architectural gems that have been faithfully serving the local population for many years. Ensuring that these beloved structures can continue to perform as they have is no easy task. New spatial, functional, and structural requirements place great pressures on old buildings, which are often already suffering from poor or deferred maintenance. Preservation architects clearly walk a fine line between the realities of the past and the needs of the present, all the while establishing reasoned and consistent justification for their actions for future generations who will one day inherit these cultural legacies.

The 1878 Conservatory of Flowers in San Francisco's Golden Gate Park has been faithfully restored.

PHOTOGRAPHY: © DAVID WAKELY PHOTOGRAPHY

Conservatory of Flowers

Born from a kit of parts of uncertain parentage, the pedigree of San Francisco's Conservatory of Flowers is highly questionable. Its components were originally purchased by a San Jose, California, businessman who died before it was ever assembled. Still in boxes, the greenhouse pavilion found its way to San Francisco's Park Commission. In 1878, the city erected the 12,000-square-foot building—which included an entry vestibule, domed central space, east and west wings, and potting room—in Golden Gate Park. The structure was fabricated primarily from old-growth redwood.

The oldest extant building in the park and the oldest public greenhouse in California, the conservatory has had its share of troubles: In 1995, unusually strong winds rattled its by-then decrepit structural frame and diaphanous skin. Unable to withstand the forces, its skeleton swayed and twisted, and numerous glass panes popped and shattered. The city had no choice but to close it. Two local firms—Architectural Resources Group (ARG) and Tennebaum-Manheim Engineers—worked together to make the necessary repairs.

The team determined that, because it was in such poor condition, the hothouse would have to be entirely disassembled and rebuilt from the foundation up. It was restored in phases to ensure adequate accommodations for its cherished flora specimens. And great effort was made to retain as much of the historic fabric as possible. The arches in the upper and lower domes (and at the corners of both wings) were reinforced with stainless-steel plates cleverly concealed between two outer layers of wood. The jambs and sills that once formed the clerestory structure between the upper and lower domes were replaced with a carefully detailed series of wood-clad stainless-steel vierendeel frames supported on eight interior columns. The upper dome transfers the lateral load onto the vierendeel, which in turn transfers the load onto the lower-dome arches. These forces are then transferred onto vertical, braced frames made of tube steel and ¾-inch-diameter rods within the walls of the dome room. The tops of the braced frames are stabilized by a new horizontal truss, which was fabricated from very slender stainless-steel components—3-inch-diameter tubes and ⅝-inch-diameter rods—to blend inconspicuously within the original structural elements. The forces from the braced frames are transmitted to a new, more substantial concrete foundation.

High moisture content inherent in greenhouse operations meant that proper airflow was critical. The wings of the conservatory had been designed with glazed ventilation panels along the perimeter base and roof ridges. Unfortunately, the wood frames of the lower panels had rotted out long ago, so the units were replaced in their entirety by fixed,

Nancy B. Solomon, AIA, writes frequently about building science.

CONTINUING EDUCATION

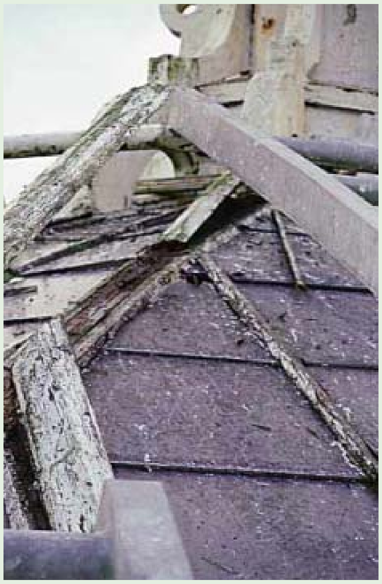
Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ AIA Continuing Education article. To receive credit, turn to page 156 and follow the instructions. Other opportunities to receive Continuing Education credits in this issue include the following sponsored section: "Unveiling the New MasterFormat 2004 Edition," sponsored by CSI, The Construction Specifications Institute, page 175.

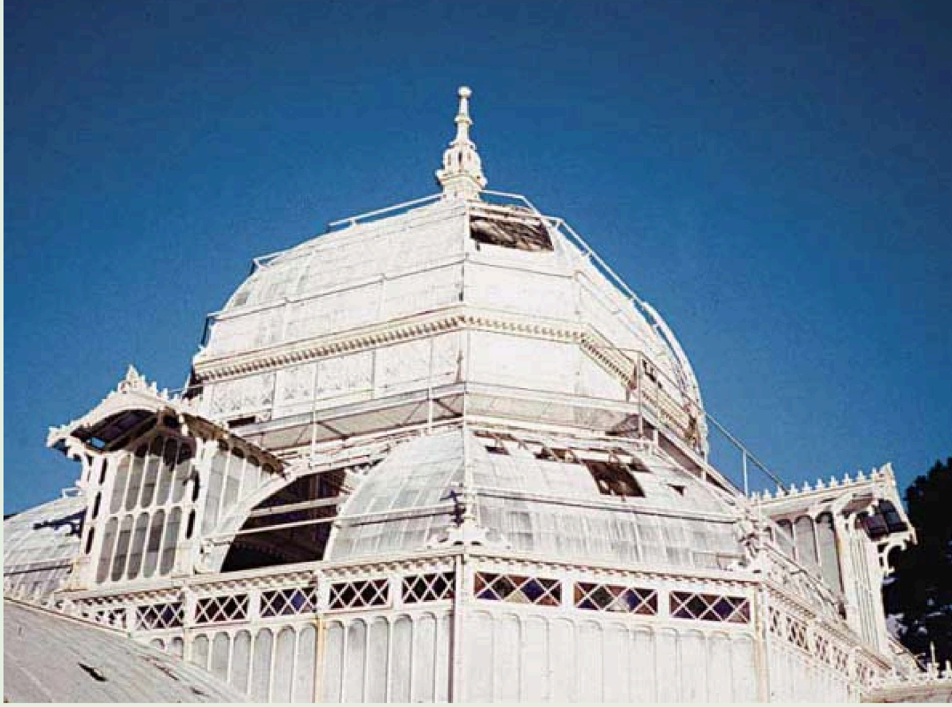
LEARNING OBJECTIVES

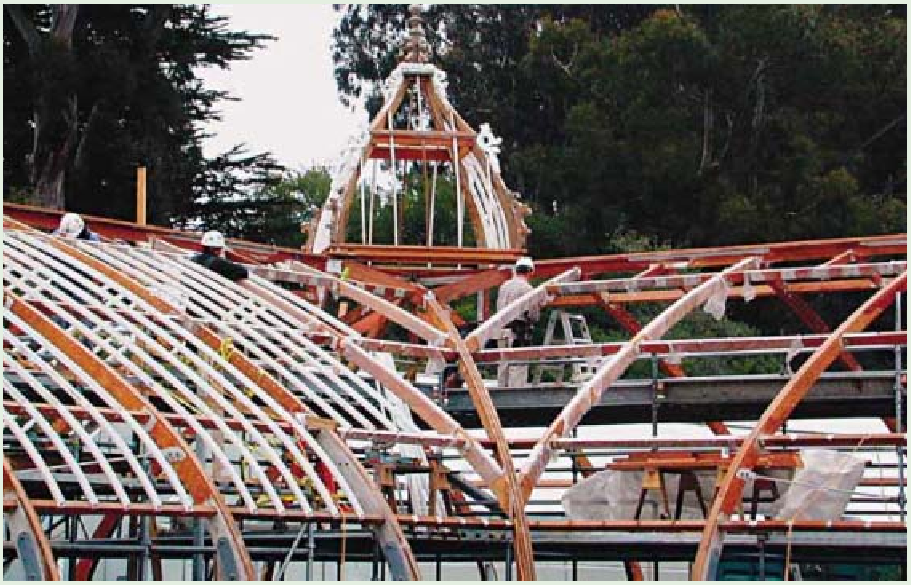
After reading this article, you should be able to:

1. *Describe the problems of sustaining old buildings.*
2. *Discuss design considerations that arise during restoration.*
3. *Identify goals of preservationists.*

For this story and more continuing education, as well as links to sources, white papers, and products, go to ***www.architecturalrecord.com***.







At the Conservatory of Flowers in San Francisco, the architects uncovered serious deterioration in the wood arches (above left). Storm damage was evident at the dome (above). The west (left) and east wings and cupolas were rebuilt. The lateral load at the upper dome (opposite, top) was transferred onto a vierendeel truss, which is concealed in the clerestory. The restoration received the California Governor's Historic Preservation Award for 2004 and an AIA 2005 Institute Honor Award.

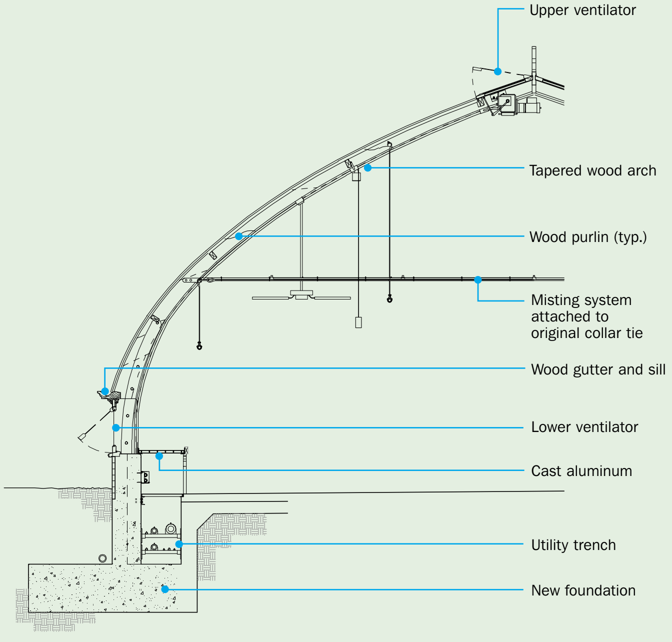
cast-concrete panels. In addition, the wood frames of the upper panels had warped and twisted so much over time that they too were inoperable. To avoid such problems in the future, ARG specified ventilation panels of moisture-resistant fiberglass to match the original wood profiles. The architects also added fiberglass-framed ventilation panels at the very top of the central dome, where none had been before. The lower sash of the clerestory is also operable, as before. Most of the structure's upper and lower vents open automatically when ongoing monitoring devices detect a need for increased airflow. Some ventilators, however, were left with the original manual operating hardware and not connected to the automatic system in order to retain some of the historic hardware and to provide some airflow in the event of a power failure.

ARG was able to salvage most of the decorative woodwork, but the structural wood elements, for the most part, had deteriorated beyond repair. ARG considered pressure-treated young-growth redwood, as recommended by a wood research consultant for its durability. During a testing phase of the project, however, this approach proved less than optimal because the treatment process caused some splitting and warping of the long, narrow lumber required for the arches and would have triggered objectionable delays in the construction schedule. Fortunately, the city identified another option that was acceptable from both preservation and sustainable-design perspectives: buckskin redwood logs. These logs had been cut years ago but left behind because they either were too small or fell into ravines. The surface of such logs, which have long lost their bark, turns a buckskin color—hence the name.

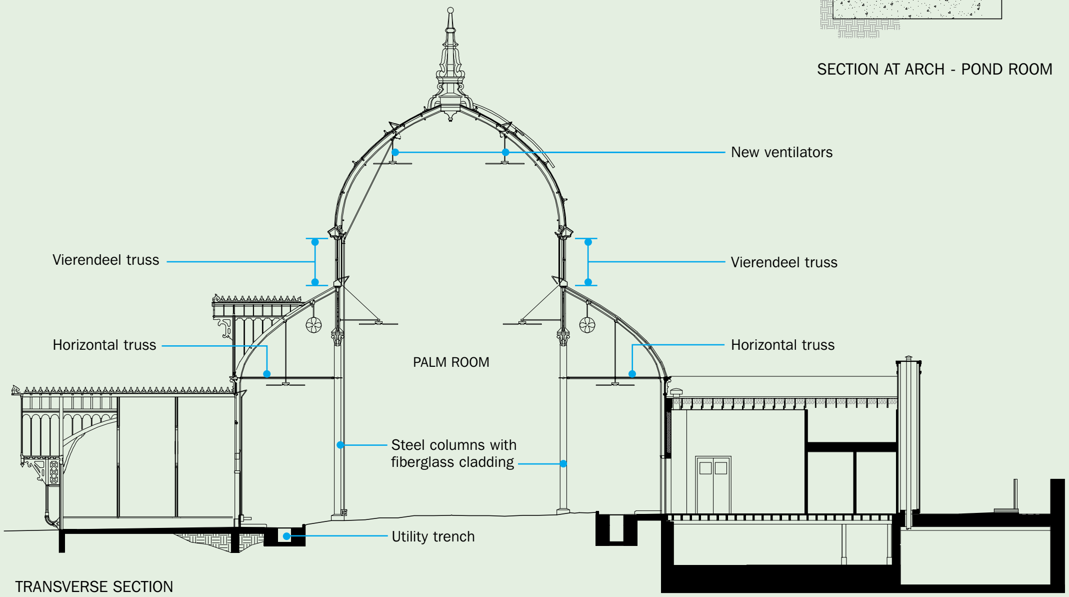
The Peabody Institute

Founded in 1857 in Baltimore, the Peabody Institute of Johns Hopkins University established a premier cultural resource—the country's first conservatory of music, the city's first publicly accessible library, an art collection, and a scientific society—within the now historic Mount Vernon district. The monumental, Italianate building—with a double-height performance hall on the first level and a double-height gallery on the second—was designed by architect Edmund Lind in 1857 and built in 1861. A second building, also designed by Lind to attach seamlessly to the first via a shared central entry and marble-clad front facade, was erected in

PHOTOGRAPHY: © ARG


Upper ventilator
Tapered wood arch
Wood purlin (typ.)
Misting system attached to original collar tie
Wood gutter and sill
Lower ventilator
Cast aluminum
Utility trench
New foundation

SECTION AT ARCH - POND ROOM


New ventilators
Vierendeel truss
Vierendeel truss
Horizontal truss
Horizontal truss
PALM ROOM
Steel columns with fiberglass cladding
Utility trench

TRANSVERSE SECTION

PHOTOGRAPHY: © DAVID WAKELY PHOTOGRAPHY (TOP); DRAWINGS: COURTESY ARG

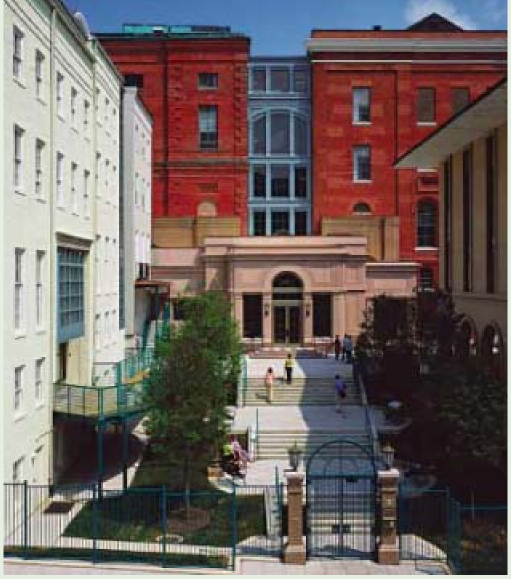
1875 to provide a separate lecture hall for the society at the lower level and more fitting spaces for the library at the upper levels.

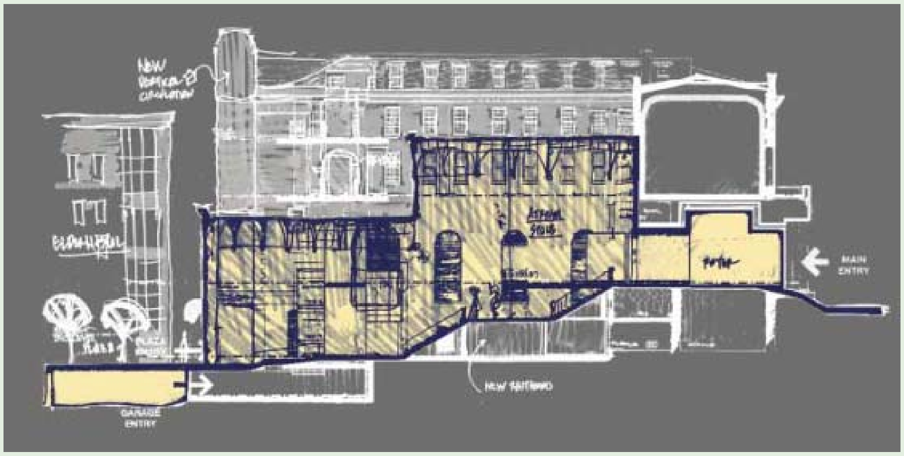
As the private institution flourished, its facilities expanded across the city block. In the 1960s, architect Edward Durell Stone envisioned a blockwide campus for the growing institution that would focus on an internal outdoor plaza. Stone also designed a dormitory with an underground garage, which was built around this time. Unfortunately, by the end of the 20th century, the complex had become a fortress to enter and a virtual maze to navigate.

The renovation by Quinn Evans Architects of Washington, D.C., completed last year, put an end to all that. The design firm opened up the campus to the outside and improved internal circulation, all the while creating much-needed programming space in a cherished historic building on a tight urban site. Needless to say, all of these moves required careful attention to structure and systems. Robert Silman Associates of New York served as structural engineer and Vanderweil Engineers of Alexandria, Virginia, oversaw the modernization of mechanical, electrical, and plumbing systems.

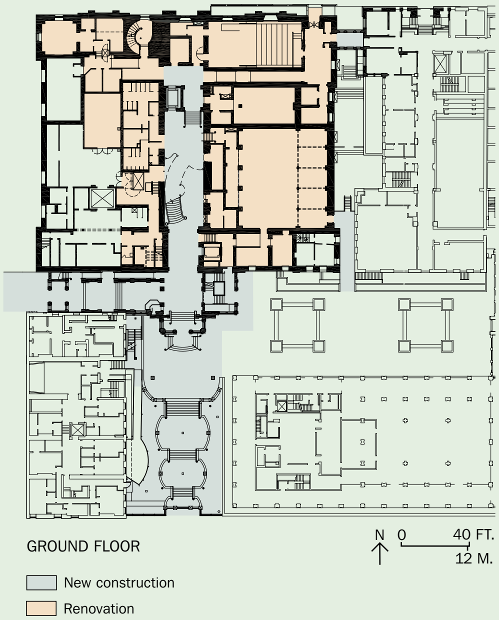
To begin to solve the campus's most vexing circulation problems, the architects inserted a new, 5,000-square-foot arcade into the outdoor light well between the two Lind buildings. The glass-covered arcade now serves as a formal lobby for the performance spaces. "For the first time, concertgoers can buy tickets, check coats, access restrooms, and spend intermission in an environment that enhances their experience," says design architect Michael Quinn, FAIA.

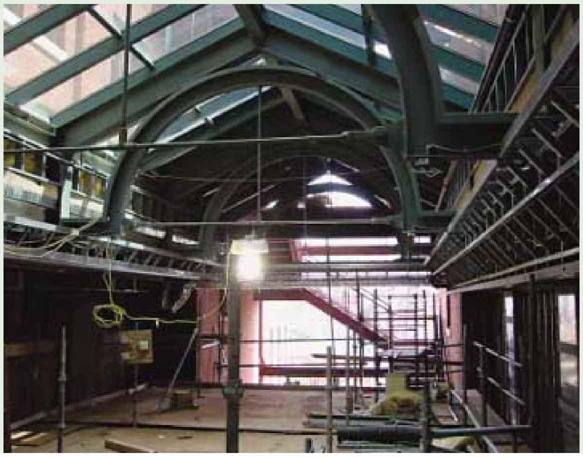
Through a combination of grand stairs and public elevators, the new circulation space navigates a 21-foot drop in elevation between the historic street entrance at Mount Vernon Place and the new door to the campus's interior plaza. A new one-story addition between the original conservatory building and the renovated row of 19th-century structures provides an accessible route, plus gallery space, from Washington Place to the arcade's plaza entrance. Improved vertical circulation at the south end of the arcade offers a more direct and appropriate passageway for patrons parking below grade. This same route also provides access to new practice spaces that were inserted underneath the plaza, adjacent to the garage.

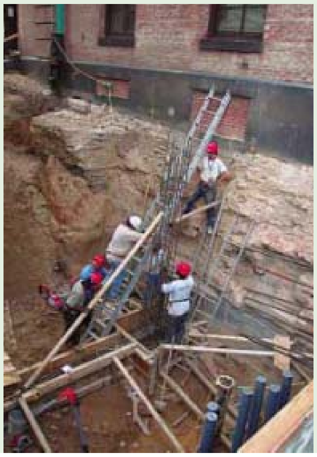




To solve circulation problems at the Peabody Institute of Johns Hopkins University, the architects inserted a new, 5,000-square-foot steel arcade (below left and above right) in a series of 12-foot modules. A series of grand stairs and elevators (above left) connect the street entrance to the interior plaza. Underpinning (below right) was required in order to excavate for lower levels of the arcade and practice rooms.







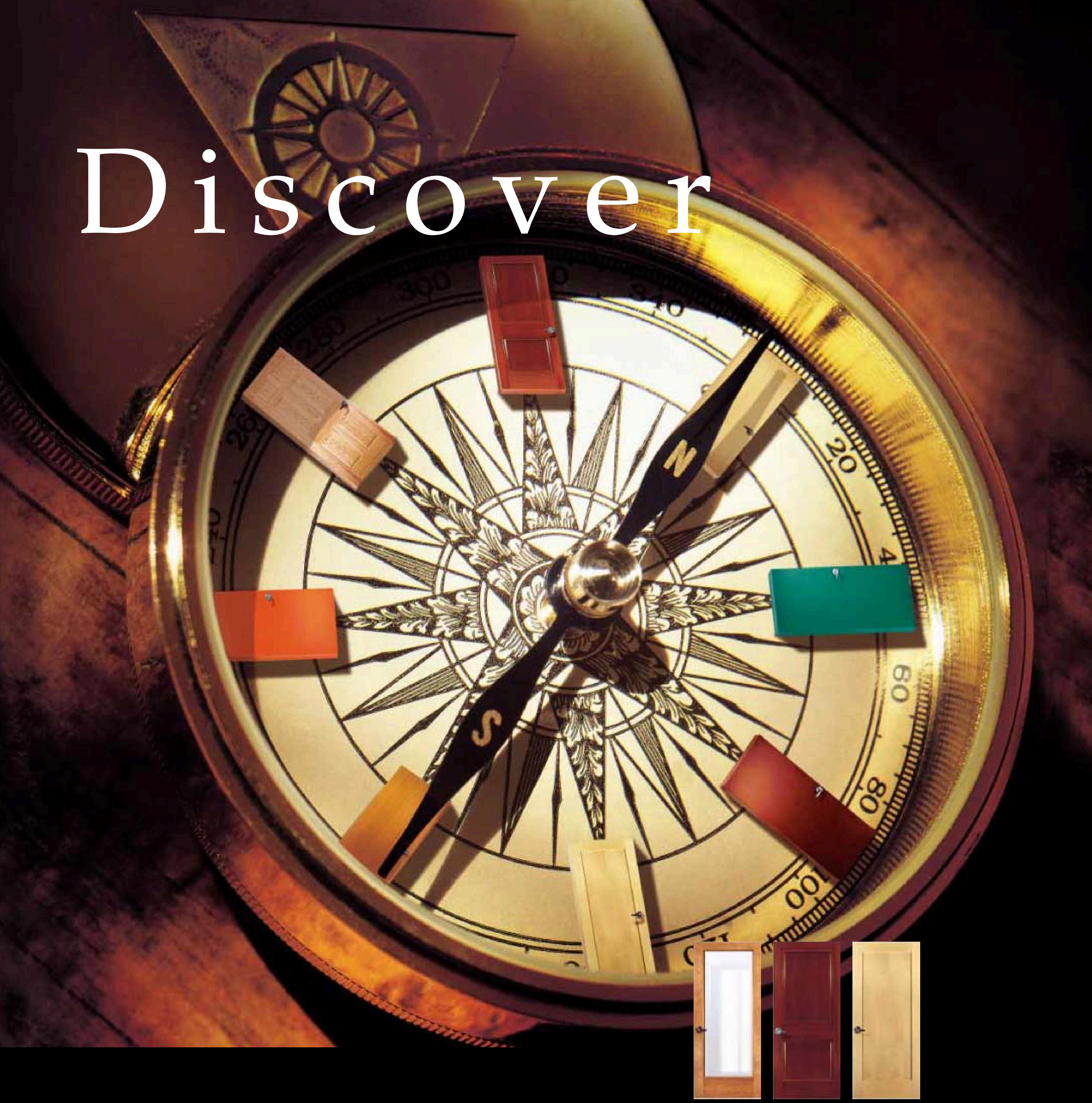
PHOTOGRAPHY: © QUINN EVANS ARCHITECTS (BOTTOM TWO); ALAN KARCHMER (TOP LEFT)

Inserting the arcade's relatively light structure into the original buildings' massive brick walls was relatively easy, but nonetheless required some technical maneuvering. A new steel ledger beam had to be hung from the conservatory wall to transfer loads to more appropriate points. The arcade's new steel trusses are fixed into beam pockets created in the library's brick wall and rest on slip joints on the new ledger beam of the conservatory wall, to accommodate thermal expansion and contraction.

The excavation for the lower levels of the arcade and the underground practice rooms, however, was more daring since it involved significant underpinning of the original load-bearing brick walls. Says project manager Carl Elefante, AIA, "By the time you hit the foundation, the walls are 4 feet thick." The structural engineer designed the underpinning and reviewed every submittal very carefully to ensure that the contractor was proceeding according to a very methodical process, building one pier at a time. And extremely sensitive monitoring devices were placed at the underpinning locations to keep close tabs on how much the historic structure was settling due to the work.

More than anything else, the conservatory desperately wanted a well-designed rehearsal room for its orchestra. At the same time, given the tight site and historic nature of the building, this was the most difficult problem to solve. Peabody, in consultation with Acoustic Dimensions of New Rochelle, New York, was determined to convert East Hall—the original lecture room in the Library Building—into such a space before Quinn Evans was retained. It was up to the architects to make this a reality.

The hall was designed with tiered platform seating and a speaker's dais. When Quinn Evans arrived, the space was being used as a makeshift music classroom and library storage space. Ten brick arches spanned visible brick pillars, which clearly presented sight-line challenges for the intended function. On closer inspection, however, the architects discovered a single, slender cast-iron column hidden within the storage area. Archival research and limited destructive testing revealed that the other pillars were indeed brick casings around the same cast-iron element. It was a "yahoo" moment for the architects, recalls Elefante, who were relieved to know the removal of these bulky outer shells would be in keeping with their preservation goals.



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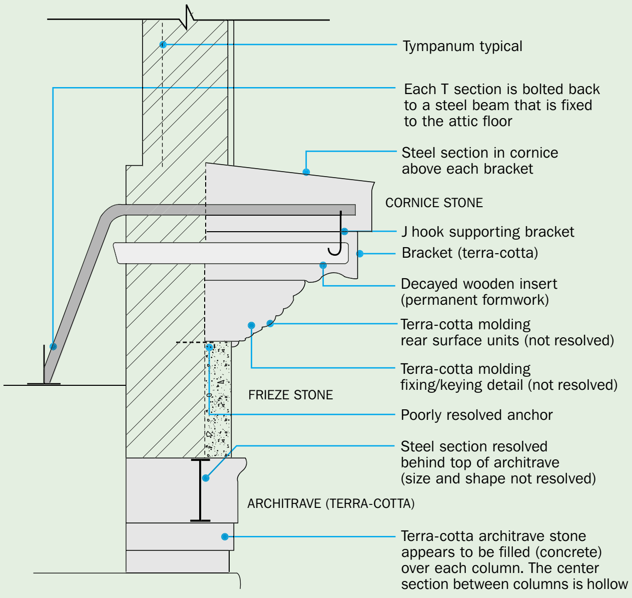
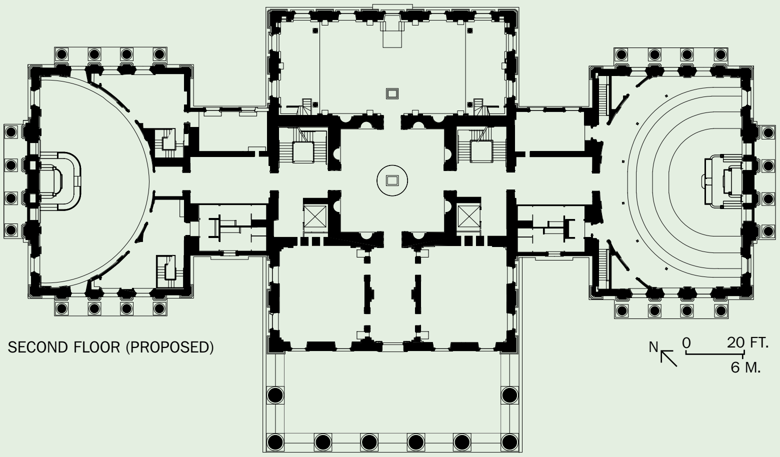

Tympanum typical
Each T section is bolted back to a steel beam that is fixed to the attic floor
Steel section in cornice above each bracket
CORNICE STONE
J hook supporting bracket
Bracket (terra-cotta)
Decayed wooden insert (permanent formwork)
Terra-cotta molding rear surface units (not resolved)
Terra-cotta molding fixing/keying detail (not resolved)
FRIEZE STONE
Poorly resolved anchor
Steel section resolved behind top of architrave (size and shape not resolved)
ARCHITRAVE (TERRA-COTTA)
Terra-cotta architrave stone appears to be filled (concrete) over each column. The center section between columns is hollow

SECTION THROUGH BRICKWORK PIER
THICKNESS 2 FEET 2 INCHES



SECOND FLOOR (PROPOSED)

The Virginia State Capitol (above left) has undergone many additions since the wings were added around 1906. The section at the left represents a summary of findings based on a review of historic drawings and photographs, a close-up visual survey of the attic space, as well as impulse radar and metal detection.

PHOTOGRAPHY: COURTESY VALENTINE RICHMOND HISTORY CENTER (TOP LEFT); HILLIER ARCHITECTURE (TOP RIGHT)

The Virginia State Capitol

Working on the Virginia State Capitol in Richmond is no trivial matter. Designed to reflect the values of democracy by founding father Thomas Jefferson, the original edifice was constructed between 1785 and 1798. It was the first public building in America to reflect the Classical Revival style and quickly became the model for many civic buildings that have since appeared across the United States. George C. Skarmeas, AIA, director of historic preservation at Hillier Architecture, approaches the current restoration and expansion effort—scheduled for completion by the end of 2006—with great deference and care: “We have momentary custody of this building. By maintaining the highest standards of treatment, we can assure the history of the capitol for generations to come.”

Jefferson’s approximately 29,000-square-foot structure was erected on Shockoe Hill, in the center of what came to be called Capitol Square. Its famed South Portico—with Classical pediment spanning six Ionic columns above a cascading set of steps—overlooked the James River. At first glance one would assume that the entrance to this dignified building was through the grand portico, but in fact the major entries were set in the middle of the east and west facades. These entrances led through central corridors to a domed, two-story rotunda that has, since 1796, been dominated by a life-size marble statue of George Washington by French artist Jean-Antoine Houdon. The assembly rooms for the House of Delegates and the Senate originally flanked this central zone on the north and south, respectively.

By the1970s, the state legislature was again outgrowing its quarters. A design at that time proposed a terraced addition of offices and parking at the historic south lawn. Sarcastically dubbed “the hanging gardens of Babylon,” the concept was met with vociferous public outcry. The state government retreated, making do for many more years by claiming space, in piecemeal fashion, from existing nearby buildings. By the 1990s, however, they were bursting at the seams. Still smarting from the 1970s experience, the client envisioned an addition most likely to the north or west that would connect below grade with the current complex. This new structure was to serve as the new public entrance, among other functions.

So the client was dubious, to say the least, when Skarmeas proposed an underground addition to the south. But the preservation architect had good reasons for entering from this direction: The public would view

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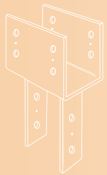

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the building—"the temple on the hill"—as Jefferson had originally intended. The north facade—the only original exterior that had not been significantly altered in more than two centuries, would remain undisturbed; existing door and window penetrations hidden under the South Portico stairs could provide access to Jefferson's building without undertaking expensive excavation and underpinning beneath the treasured edifice; and the southern location meant the public entrance could be positioned far away from the historic building and the workings of the state government.

The new, fully accessible, 27,000-square-foot extension will include a reception area, gift shop, exhibition space, café, restrooms, press room, and additional work spaces for legislature and staff. Parking is relegated to nearby garages, both existing and proposed. And because the Virginia Capitol is part of a larger campus of state buildings, the architect had the good fortune to be able to put the central plant—with chilled and hot-water generation for both the restored building and its new addition—at a remote location.

Through archival research of drawings, photographs, and other documents, plus methods of nondestructive testing—including impulse radar, thermography, metal detection, and dynamic impedance—the project team developed as full a picture as possible of the age and condition of the existing fabric. From this evaluation, they could narrow down the areas that would require more invasive methods to complete the assessment of existing conditions, repair necessary damage, and make necessary upgrades for current needs.

Contrary to the once-prevalent belief, the team discovered that much more than the bricks dated back to the Jeffersonian period. Paint analysis of the interior millwork, for example, revealed that much of the trim is original. Much to their regret, however, the architects found no single room in the Jeffersonian structure that had not undergone significant changes. If they had found even one, they may have felt justified in restoring that particular space to Jeffersonian colors and details. Instead, explains Skarmeas, the team agreed that the date of restoration should be 1906, as that was when the wings were added and the complex reached full maturity.

Documentation indicated that the two 1906 passageways on either side of Jefferson's temple had been heavily modified since their initial construction. Because of that—and the fact that they have always served ancillary functions—they were the most likely candidates for the greatest interventions. The architects efficiently stacked new bathrooms here, which subsequently freed up space in the entry zones of Jefferson's building. New elevators will be inserted on the south side of these zones so that the current elevators on the north can be removed to fully expose the 1906 staircases. Skarmeas and his team leave no details to chance. Walking around the building, he points to 5-foot-diameter drums filled with concrete that brace exterior scaffolding so that this temporary framing need not be attached to the historic facade. He explains that he didn't need to tell the construction manager in advance to take this important precaution—one of the many anecdotes that Skarmeas shares to exemplify the importance and satisfaction of working with team members who are already sensitized to the unique needs of such a priceless preservation project. ■

An expanded version of this article can be found at ***www.architecturalrecord.com***.

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INSTRUCTIONS

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- ◆ **Complete the questions below, then fill in your answers (page 232).**
- ◆ **Fill out and submit the AIA/CES education reporting form (page 232) or download the form at www.architecturalrecord.com to receive one AIA learning unit.**

QUESTIONS

1. The Conservatory of Flowers was restored in phases for what reason?
a. to use funding as it became available
b. to limit construction unsightliness in the park
c. to ensure adequate accommodations for its flora specimens
d. to maintain the stability of the structure

2. How were the arches in the domes of the conservatory reinforced?
a. with new wood
b. with new rebar
c. with concealed stainless-steel plates
d. with concrete panels

3. In the conservatory, the ventilation panels were replaced with what?
a. stainless steel
b. fiberglass
c. cast concrete
d. new wood

4. In the conservatory, some manually operated ventilators were left for what reason?
a. to retain some of the historic hardware
b. to provide some airflow in the event of a power failure
c. proper airflow could not be automatically controlled
d. both a and b

5. The conservatory's structural wood elements were replaced with what?
a. buckskin redwood
b. pressure-treated young redwood
c. redwood bark
d. resin-impregnated redwood

6. The Peabody Institute's circulation problem was resolved by which?
a. an internal outdoor plaza
b. an underground garage
c. a glass-covered arcade between two buildings
d. a shared central entry

7. The Peabody's most difficult problem was resolved after what discovery?
a. brick casings enclosed a cast-iron column
b. tiered platform seating could be installed
c. the acoustics were good in the original lecture room
d. brick could be matched to add pillars in the rehearsal room

8. Monitoring devices were used during which phase?
a. hanging the new steel ledger beam
b. inserting the arcade
c. underpinning of the original load-bearing walls
d. removal of the brick pillar outer shells

9. The Virginia State Capitol south addition was possible for all the reasons except which?
a. the expansion would be underground
b. the north face would remain unaltered
c. the public entrance would be away from the government offices
d. an expansion to the south had been proposed previously

10. Why was the color scheme restoration not Jeffersonian?
a. the millwork trim was not original
b. the bricks were not original
c. no room was found in the Jeffersonian structure without significant changes
d. the grand 1906 staircase took precedence

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Rebuilding ancient history, one

A MULTINATIONAL TEAM OF CONSERVATION EXPERTS HAVE CREATED A SYSTEM FOR DOCUMENTING ENDANGERED SITES IN WAR-TORN IRAQ. THEY'VE GOT THEIR WORK CUT OUT FOR THEM.

By Deborah Snoonian, P.E.

Countries embroiled in war constantly face the odious task of assessing loss. Those killed during conflict are obviously the most hideous and incalculable costs of war, but damaged infrastructure, buildings, and monuments also take a significant toll on a nation's resources and sense of identity. Images of destruction persist long in memory—who can forget the crumbling stone shell of Kaiser Wilhelm Memorial Church in Berlin, bombed by Allied forces during World War II? Or the twisted skeletal remains of the World Trade Center towers in Lower Manhattan in 2001?

After Baghdad fell to American-led forces in spring 2003, newspapers were filled with photos of bombed-out civic buildings and the looted interiors of Saddam Hussein's palaces—symbols of an old regime dying on the vine. But the challenge of protecting Iraq's buildings and infrastructure is far greater than any of these photos suggest. The country's 168,750 square miles (about the size of California) are peppered with ancient religious buildings as well as the remains of some of the oldest cities and societies in the world. Its museums hold priceless artifacts from these areas. But ever since the Gulf War of 1991, and more significantly the diplomatic sanctions against Iraq that began a year earlier, the country has lacked the personnel, funding, and international assistance needed to protect and maintain these sites adequately. The World Monuments Fund (WMF) estimates there are some 10,000 culturally significant sites and monuments in Iraq; several have appeared on WMF's annual 100 Most Endangered list in the past few years.

WMF took action to reverse the course of events last year. In collaboration with the Getty Conservation Institute (GCI) of Los Angeles and the Iraqi State Board of Antiquities and Heritage (SBAH), WMF has created a system for documenting and assessing culturally significant sites in Iraq—one that relies on geographic information systems (GIS) technology and a powerful database. In time, SBAH will use the system to manage preservation and conservation projects throughout the country.

Losses mount and looters rule during years of isolation

Structures damaged by bombs and gunfire during the Gulf and Iraq wars are only part of the problem. During 13 years of Western sanctions, which ended in 2003, bands of looters armed with automatic rifles and appetites for trafficking in the black market plundered buildings, archaeological sites, and museums for their wares. The stolen treasures were smuggled across Iraq's borders and sold for cash or weapons, officials say.

The Iraq National Museum in Baghdad was particularly hard-hit in April 2003, after the city was taken over by allied forces. Fires at national libraries in Baghdad and Mosul also damaged their holdings and made them more vulnerable to looters. Western museum officials estimate that 10,000 to 15,000 artifacts are missing from these institutions. Much less is known about what's been taken from archaeological sites, but satellite photographs taken during 2003 and 2004, as well as initial inspections by scholars, showed excavations and damage that hadn't existed previously. John Malcom Russell, who teaches art history at the Massachusetts College of Art and served as an adviser to the Coalition Provisional Authority in Iraq, estimates that 400,000 to 600,000 cultural artifacts have been removed from their sites. "In terms of their contribution to the cultural history of civilization, the value of preserving these sites and recovering artifacts from them is almost incalculable," says Tim Whalen, director of GCI.

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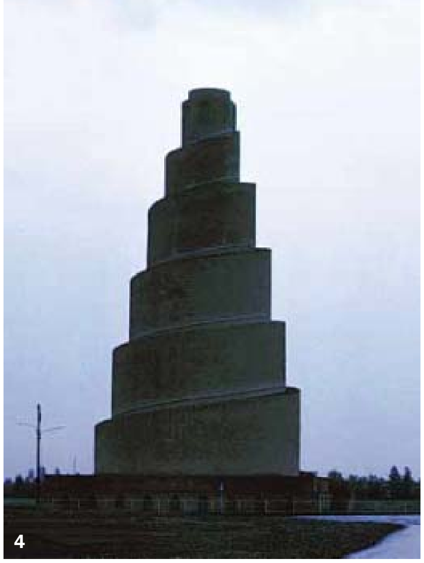

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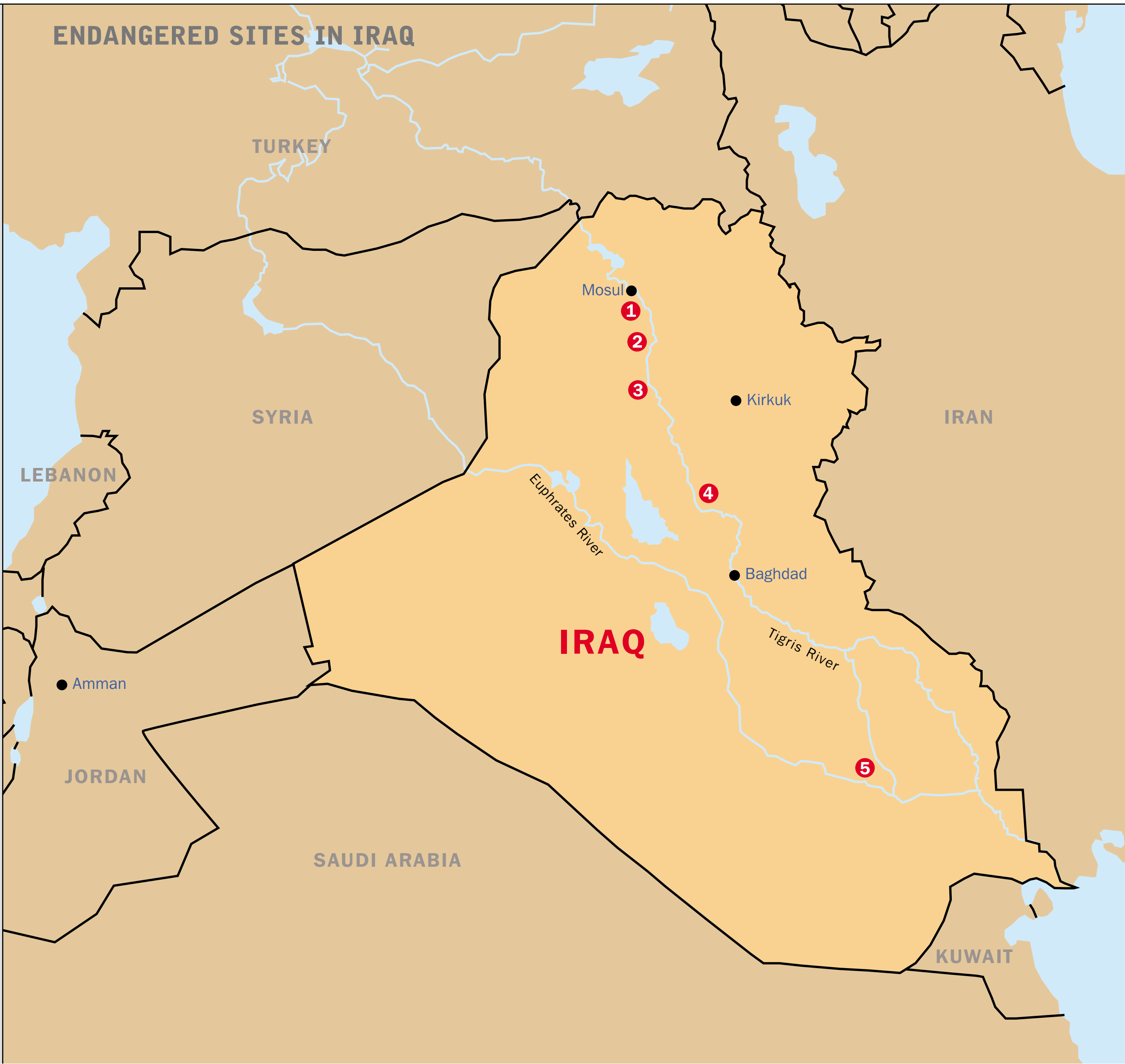
megabyte at a time

Training sessions for the Iraqi documentation project took place initially in Amman, Jordan, in January 2005. Just a few of the country's numerous ancient sites are pictured above.

1. **Nineveh, 6000 B.C.:** An American-sponsored excavation took place in this imperial capital until the Gulf War broke out in 1991. The palace of biblical king Sennacherib was looted after the war.
2. **Nimrud (Calah), 5,500 B.C.:** In 1989, archaeologists discovered gold-filled tombs of Assyrian queens in this ancient city.
3. **Hatra, 150 B.C.:** Many sculptures in this city's well-preserved temple were damaged or looted during the Gulf War.
4. **Samarra, A.D. 9th century:** The Great Mosque is a well-known icon of this early Islamic capital.
5. **Uruk (Warka), 4,500 B.C.:** Some of the first examples of writing were found in Uruk, one of the first large cities established in Mesopotamia.


ENDANGERED SITES IN IRAQ
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SYRIA
LEBANON
IRAN
Mosul
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2
3
Kirkuk
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Euphrates River
Baghdad
IRAQ
Tigris River
Amman
JORDAN
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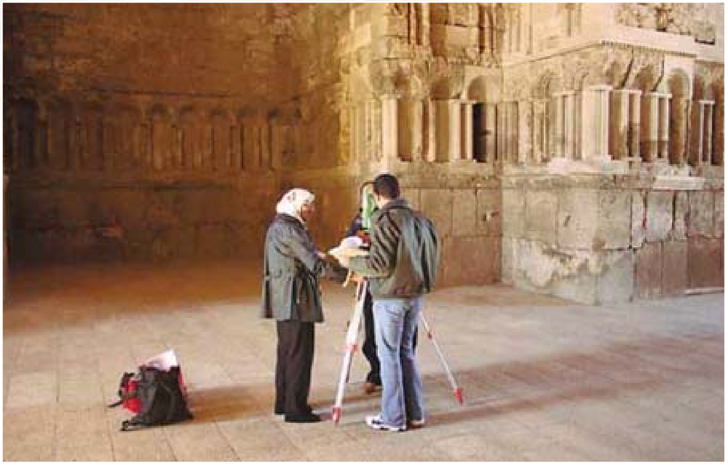
SAUDI ARABIA
KUWAIT



Personnel from Iraq's SBAH review testing methodologies for site assessment at Ain Ghazal, an archaeological site outside Amman, Jordan (left). Gaetano Palumbo of WMF examines site maps with SBAH trainees (below left). A GIS total station is used to collect location information at the Amman Citadel (below).

PHOTOGRAPHY: COURTESY THE WORLD MONUMENTS FUND

Assessing site conditions in the cradle of civilization

The WMF/GCI project consists of three main activities. First, a system was conceived to collect and record each site's key parameters (e.g., location, age, dimensions, condition). At the same time, they developed a database for entering and managing site information electronically. Underpinning these efforts is a comprehensive training program for SBAH, during which staff will learn to use the tools for collecting and managing the site data, as well as how to assess site conditions. Equipment for the training sessions and documentation was paid for by grants to WMF and GCI from various organizations, and the courses were sponsored by the United Nations Educational, Scientific and Cultural Organization (UNESCO). A company called ESRI donated some $50,000 worth of their GIS software for the database.

THE IRAQIS WILL USE A WIDE RANGE OF TECHNOLOGIES TO DOCUMENT THE LOCATION AND CONDITION OF CULTURALLY SIGNIFICANT SITES.

The documentation system and training program were developed by Dr. Gaetano Palumbo, WMF's director of archaeological conservation for the Middle East, Africa, and Central Asia. He based them on a similar program he implemented for the neighboring country of Jordan in the 1990s. The first official training sessions for the initiative took place in Jordan's capital, Amman, in November and December 2004, as conditions are not yet safe enough in Iraq to assess sites in-country.

In Iraq, SBAH personnel will collect site data using a combination of digital devices and manual methods. During training sessions, Palumbo and his team demonstrated how to use a GIS total station—a digital surveying instrument that combines an electronic transit, a distance-measuring device, and a data recorder. Field crew for SBAH will set up the total station at each site to collect locations and measurements of buildings, monuments, excavations, or other features under study. A separate laser distance meter will be used to obtain a higher degree of precision where needed (e.g., when measuring a room's dimensions or a monument's surface features). These devices eliminate many of the manual calculations of field surveying and measurement, and by linking the data collected with known geographic landmarks, the features of each site can be pinpointed in real space. Once dimensions are measured, field teams would then make other observations and assessments about each site, such as noting the number and condition of site artifacts, building elements, and the like. Such information will be entered in simple field log books or on portable computers, if available.

Ultimately, the information will be entered into a GIS database designed by Stephen Savage, a professor of archaeology at Arizona State University in Tempe. He had worked with Palumbo previously to upgrade a similar system for Jordan, known as the Jordan Archaeological Database Information System (JADIS).

The WMF/GCI initiative puts SBAH on the leading edge of technological developments in preservation and conservation in the Middle East. "Astonishing accuracy hasn't been the tradition in archaeology," says Whalen. "Only in the last 5 or 10 years have these technologies gotten powerful enough and easy enough to use to make them feasible for

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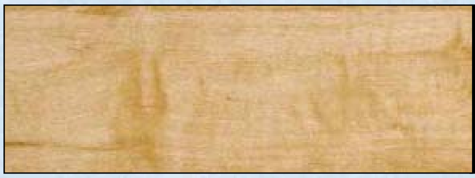

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these sites." Savage notes that U.S. states such as Wyoming, New Mexico, and Arizona are creating similar systems to document historic sites, and Whalen says the U.K. and Europe have implemented such systems for a few years. Compared to their Western counterparts, though, JADIS and SBAH's databases are designed to run on smaller, less-powerful computers, with fewer specialists needed to maintain them, to make them more feasible to implement in countries with fewer staff and modest budgets.

If there's a trade-off to the efficiencies of high-tech tools, it is that they make adequate training all the more important. "The last thing we want to do is come in with fancy equipment and leave behind a system that the Iraqis can't maintain," says Michelle Berenfeld, WMF's program manager for the initiative. Whalen says GCI will stay involved until training proves sufficient to create a long-term program, a process he estimates will take three to five years.

Both organizations stress that the effort isn't one of simple patronage. "Many of the trainers are of Iraqi descent and have been working elsewhere in preservation and conservation for years," says Berenfeld. "They've just been isolated for a long time, and they need the participation of the international community to get their program off the ground."

THE DATABASE WILL BE USED TO ENSURE THAT FUTURE REBUILDING EFFORTS WILL NOT JEOPARDIZE HISTORICALLY SIGNIFICANT AREAS.

Using data across borders to plan for the future

SBAH officials plan to hold two more training sessions this year, ideally in Iraq. Their timing and location will depend on the political situation and safety concerns. The southern provinces of Iraq, especially those between the Tigris and Euphrates Rivers, are particularly dense with ancient sites and may be a focus for early efforts. The first task facing SBAH will be simply recording what sites exist and where they are. This sounds rudimentary, but the knowledge base in Iraq is full of holes because the agency's resources were so scarce for so long.

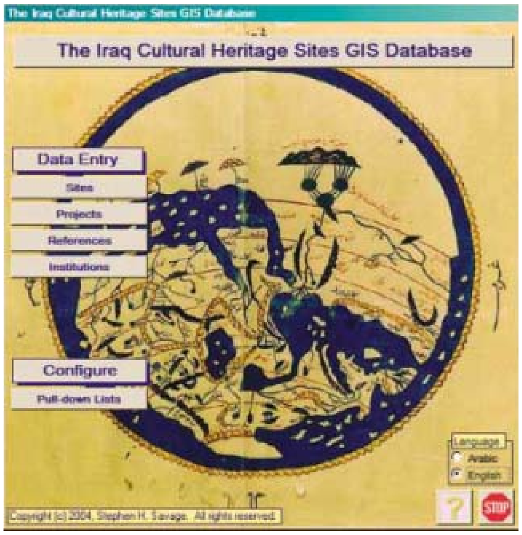
SBAH also intends to use the database for projects beyond simply managing the sites themselves. The agency has a representative in the office in charge of reconstruction in Iraq, and "with the database information, they will be able to advise developers, contractors, and government agencies on which areas should be preserved, and which areas are okay to build on," says Berenfeld. Such guidance has been difficult to provide in the absence of a centralized information system.

Although many buildings were destroyed during the Iraq War (above, a civic structure in Ramadi), looters are responsible for the most significant losses.

Both the SBAH initiative and JADIS mark a shift in how cultural resources are researched, prioritized, and preserved in the Middle East. In the past, individual sites were excavated or explored by Western universities or research organizations; now there is an emphasis on management of cultural sites by their parent countries. "Technology facilitates this trend by providing tools that help departments of antiquities become proactive in the infrastructure planning process," says Savage, the database developer. "These systems also allow sites and historic properties to be monitored for adverse conditions that might affect them over time, so that preventive and restorative steps can be implemented."

Improvements made in SBAH's database will be incorporated into JADIS, but in the long term, the two efforts may be merged into larger regional initiatives. Savage hopes to create a comprehensive information system that would allow research and preservation activities to take place across national borders in the Middle East. "Those borders are artificial anyway—they're just lines that were drawn once the Ottoman Empire was broken up," he says.

For now, though, preservationists just hope to contain the damage. Dr. Elizabeth C. Stone, an archaeologist and professor at SUNY Stony Brook, has worked in Iraq for more than a decade. "These projects may not be necessary to ensure the future of civilization," she told *The New York Times* in an interview in October 2003, "but it wouldn't be a great thing for the future of civilization to lose the cradle of civilization." ■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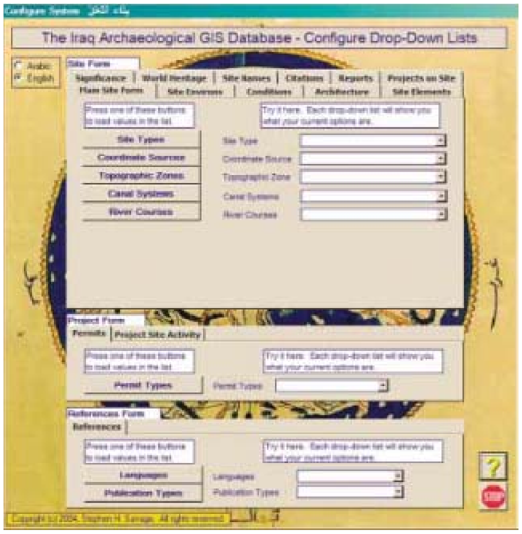
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Iraq's new information system was based on a similar database created for the neighboring country of Jordan. The system will eventually be bilingual, with information available in both Arabic and English. Users can call up information about each site based on its location, age, condition, and other parameters.

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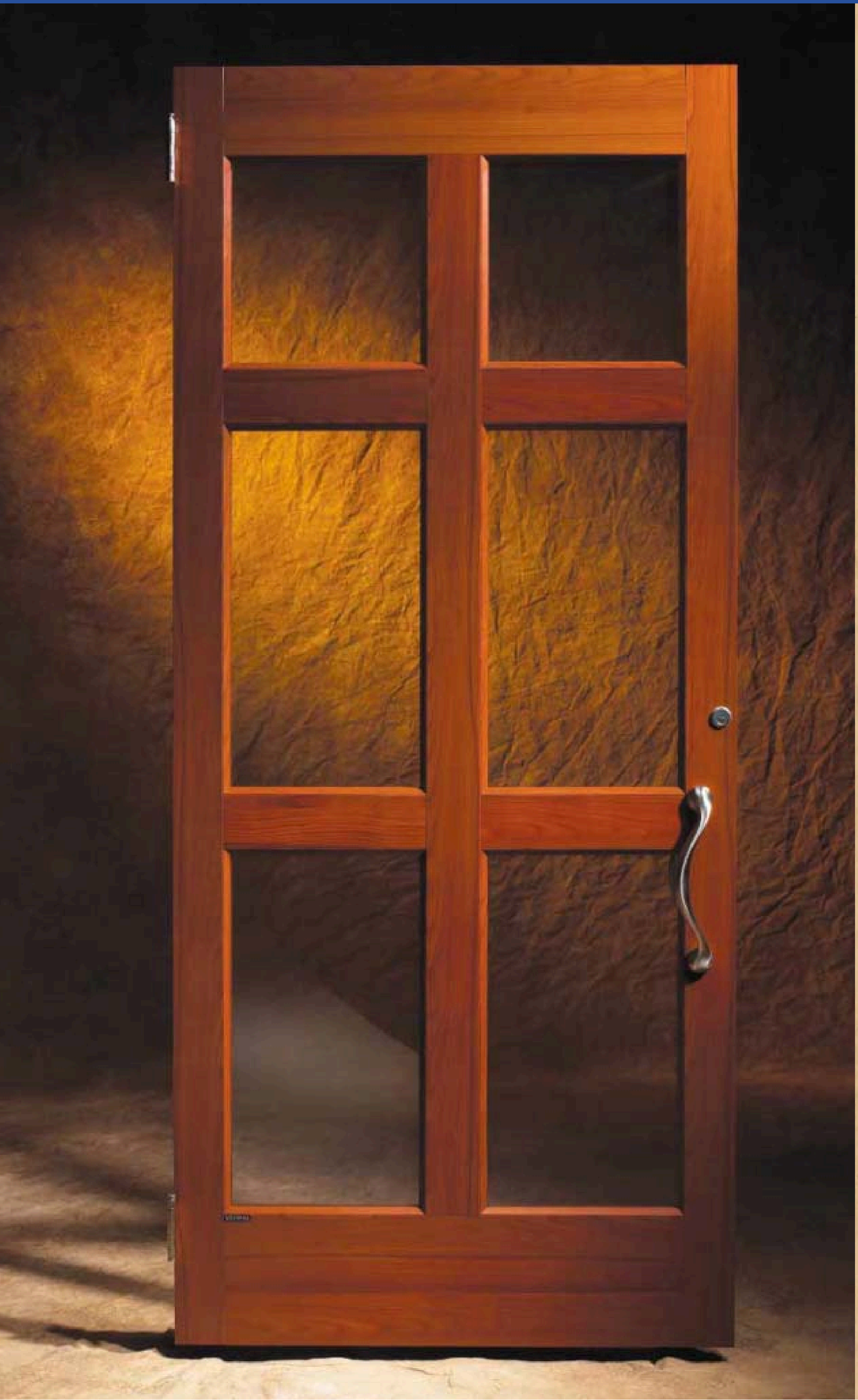

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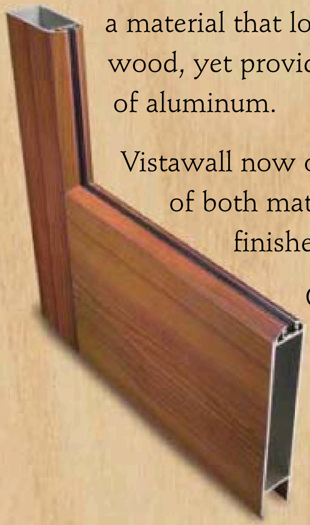

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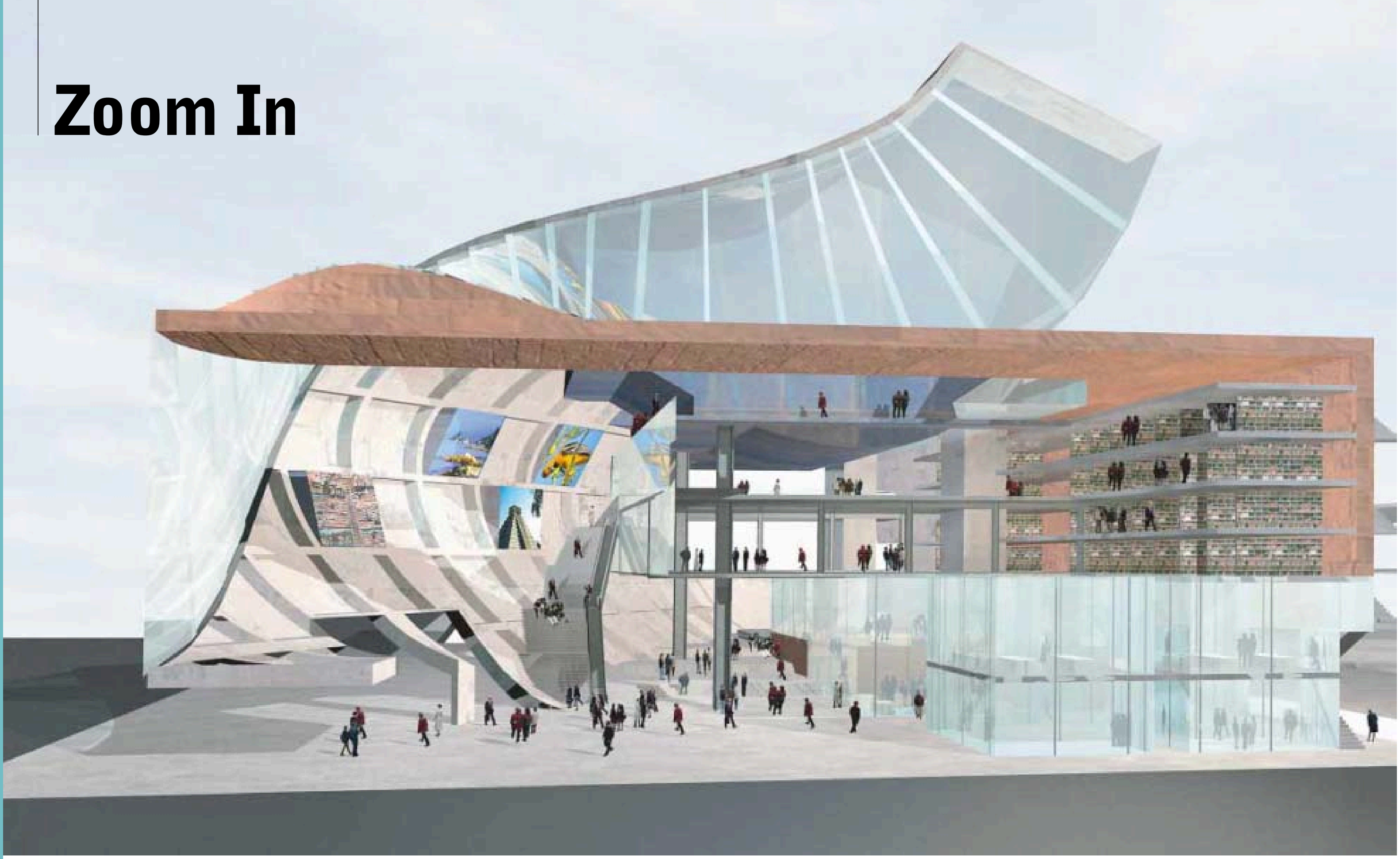
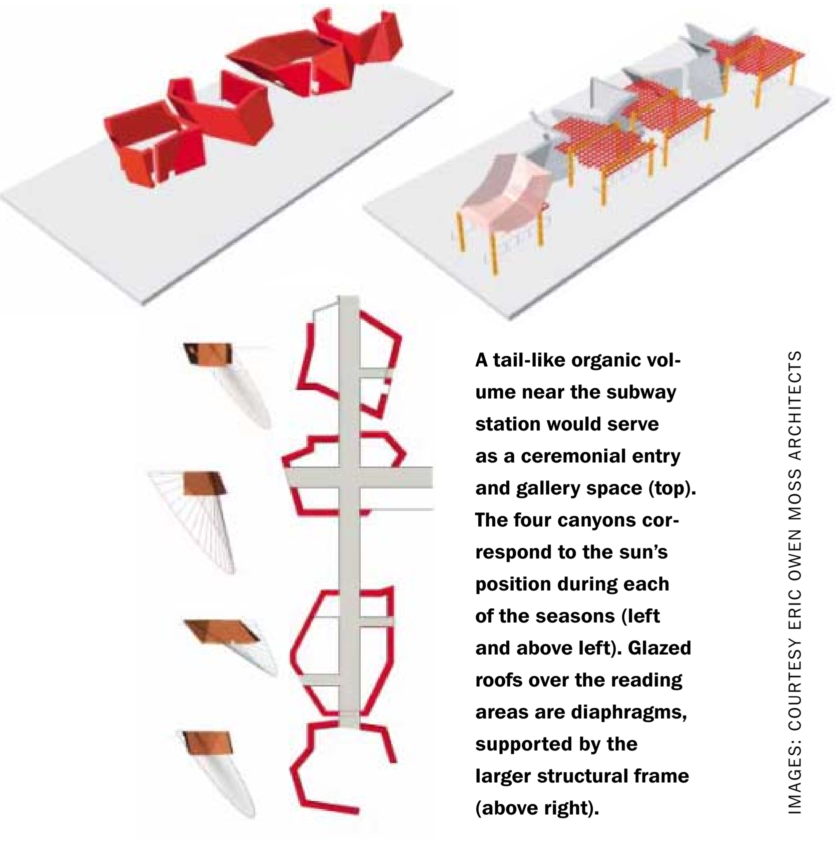


José Vasconcelos Library of Mexico

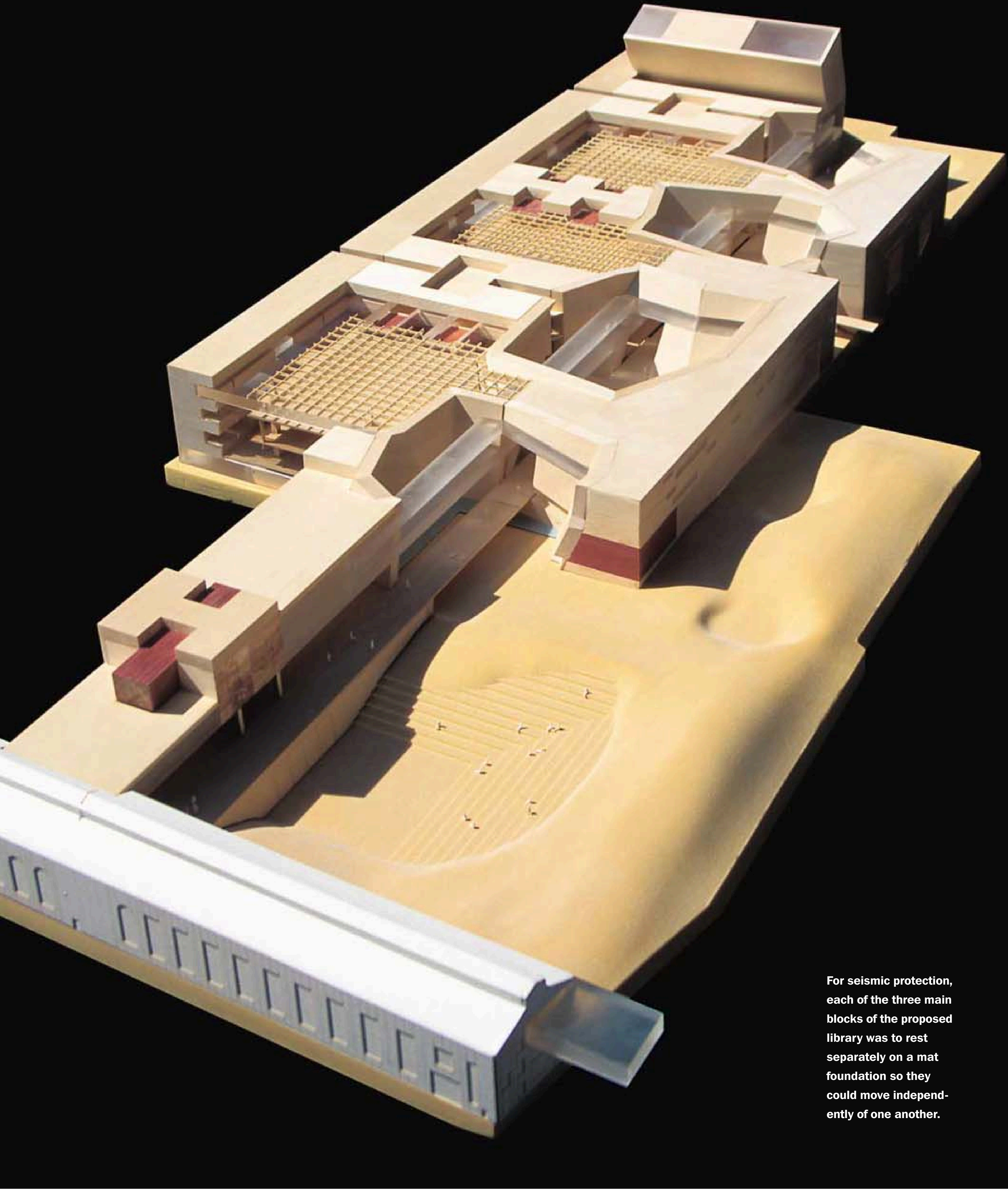
By Deborah Snoonian, P.E.

In support of president Vicente Fox's ambitious national literacy program, the Mexican government sponsored a design competition in 2003 for a new library in Mexico City that would serve as the literal and symbolic headquarters for the endeavor. The proposed design by Eric Owen Moss, which was the runner-up, incorporated features like prefabricated components and daylit "sun courts" that place it a cut above many of the entries. Aligned along a proposed new street extending the city's grid, the building Moss envisioned would have had a hybrid structural system, in which the stacks for book storage were supported by a column grid and wrapped three reading rooms supported on wide-flange columns. A series of four sun courts carved from the building's mass were shaped and oriented so that each one receives maximum sunlight during one season of the year; their walls act both in shear and in bearing. The grids of the glazed roofs over the reading areas act as diaphragms, carrying their weight to the surrounding frame. Soil excavated from the site would have been used to create an outdoor amphitheater for live performances and film screenings. Comprising a transit hub, galleries, exhibition space, and teaching facilities, the library would not have been just a place to read, but a community for readers. ■



A tail-like organic volume near the subway station would serve as a ceremonial entry and gallery space (top). The four canyons correspond to the sun's position during each of the seasons (left and above left). Glazed roofs over the reading areas are diaphragms, supported by the larger structural frame (above right).

IMAGES: COURTESY ERIC OWEN MOSS ARCHITECTS



For seismic protection, each of the three main blocks of the proposed library was to rest separately on a mat foundation so they could move independently of one another.

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Tech Briefs

Green-building advocates debate proposed changes to credits for future LEED projects • A revered campus building in New York gets a new face of glass-reinforced concrete

BYTES

In January, at the World Conference of Disasters Reduction in Kobe, Japan, the United Nations gave $8 million to researchers to establish an early-warning network for natural disasters. The system is intended to prevent massive deaths due to natural disasters, like those that occurred in the wake of the December 2004 tsunami in the Indian Ocean.

According to the Department of Energy, the installation of wind-harvesting systems in the U.S. tripled between 1998 and 2003, with a capacity now beyond 6,000 MW.

In Japan, researchers at the University of Tsukuba and the Advanced Telecommunications Research Institute are developing a system for negotiating virtual spaces physically. Stepping onto a wheeled platform made of special tiles, a user can walk in any direction but remain in the middle of the room. Sensors on the floor let the system predict where the user would go next, while the tiles communicate with a computer that matches the user's movements with a virtual scene on a head-mounted display. The system could be used in virtual evacuation drills for fires, earthquakes, and other disasters.

Researchers from the Georgia Institute of Technology have fabricated a new plastic-based solar cell that's significantly less costly than silicon and has the potential to be as efficient as most cells on today's market. The method could be applicable for residential solar cells within five years, say the researchers.

MIT has teamed up with Loughborough University in the U.K. to create a test bed for developing and analyzing new types of control technologies for HVAC systems, aimed at making buildings more comfortable.

Questions about materials strain the fabric of USGBC's big tent

As it gains influence and diversifies its portfolio of LEED rating systems, the U.S. Green Building Council is experiencing growing pains. The group riled many of its members recently with preliminary policy decisions on vinyl and sustainable wood. Critics contend the moves will weaken LEED, while defenders cite a need for further study and a willingness to engage the marketplace.

In December, the USGBC released for public comment a draft report from its PVC Task Group that advises against adding a LEED credit for avoiding the use of PVC-based materials. Many green-building advocates argue that PVC-based materials should be avoided because their production, use, and especially disposal release dioxins—persistent organic chemicals classified as known and suspected carcinogens—and other toxins. Dioxin is released when chlorinated materials like plastics and treated wood are burned. PVC-based materials can also leach toxic additives, according to some studies.

Industry representatives claim that while PVC production in North America has increased, dioxin levels have dropped as a result of improved production and disposal techniques. PVC production grew at a compound annual rate of 4.3 percent between 1992 and 2002, hitting 15.25 billion pounds in 2002, according to the Vinyl Institute, a trade group based in Arlington, Virginia. About 70 percent of PVC is used in construction, the institute claims. The EPA estimates that emissions of dioxinlike compounds in the U.S. dropped 77 percent between 1987 and 1995.

It's difficult to pin down how much dioxin PVCs account for, partly due to the complex interaction of materials and conditions when PVC is burned, according to EPA officials. Dioxin releases from municipal and medical-waste incinerators have fallen since the EPA began regulating emissions from those sources in the late 1990s, say agency officials, who add that PVC manufacturing is not a major source. Small-scale trash burning, mostly in rural areas, is the largest single source, they say; other sources include structural fires.

The USGBC is weighing credits for PVC and sustainable wood for future LEED projects. Above, EHDD's Audubon Center in Los Angeles was the first to receive a LEED platinum rating.

Manufacturers argue that vinyl is more sustainable than other materials. "Vinyl is maintenance-free, more durable, and lighter to transport," says Tim Burns, president of the Vinyl Institute. "Many vinyl products are more energy-efficient than their counterparts."

The PVC Task Group was formed in 2002 after industry members objected to the inclusion of a credit for avoiding PVCs in a draft of the LEED specification for commercial interiors. The group reviewed existing studies to compare the environmental and health impacts of PVC-based materials against alternatives used in siding, pipes, flooring, and windows. These included aluminum, wood, fiber-cement, cast iron, linoleum, and cork. Nigel Howard, vice president of LEED and international programs at USGBC, noted that with their relatively low release of particulates, PVC-based materials compared favorably in terms of occupational health.

The panel relied on both life-cycle analysis (LCA) and risk assessment for gauging human health impacts. LCA, a cradle-to-grave assessment of a material's environmental impact and cost, is a complex (and some critics say easily manipulated) methodology; nonetheless, the USGBC will rely on it increasingly, Howard said.

The council's position undercuts the market for alternative materials, according to some green-building advocates. "USGBC is trying to create flexibility," says Rob Bennett, a senior program manager in Portland, Oregon's office of sustainable development. "We're very much in the business of incremental change, but from our perspective, this doesn't help." Still, some manufacturers see avoiding potentially harmful substances as good business, says

PHOTOGRAPHY: © CESAR RUBIO

Mark Rylander, AIA, an associate partner with William McDonough + Partners and 2004 chair of AIA's Committee on the Environment (which is staying out of the fray).

Many designers are expected to remain cautious about PVC. "Their view is, 'we're not going to spec it anyway,' " says one consultant, who asked not to be named. The consultant noted that overseas groups like the Green Building Council of Australia do credit efforts to minimize PVC use.

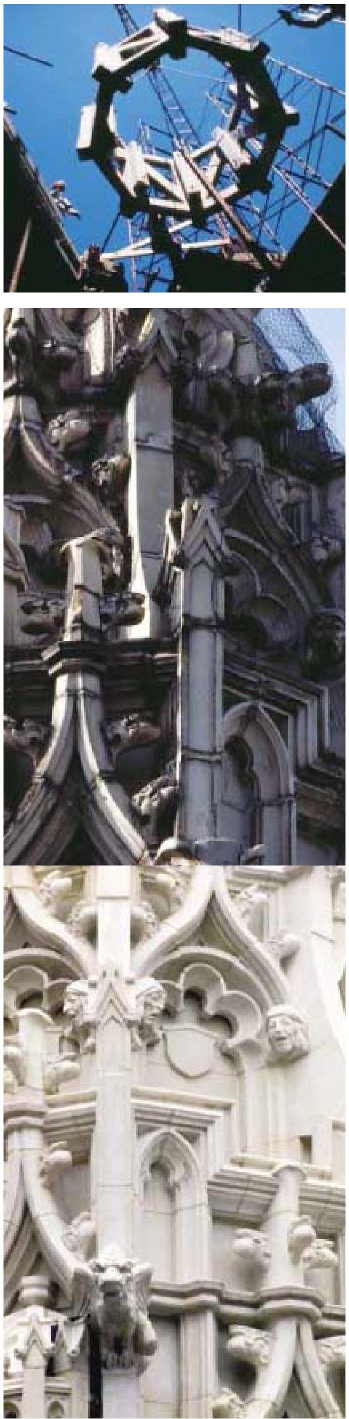
Some critics say USGBC's report rejects the precautionary principle, which essentially requires proof of safety rather than definitive proof of harm. "We're trying to take a precautionary approach to promoting change," Howard said. "But the task group didn't find any clear pattern in the results."

A wide range of environmental, industry, and health groups have weighed in on the draft. The public-comment period was slated to end February 15, after which the task group is due to issue a final report to the LEED Steering Committee, the final arbiter on policy changes.

USGBC has also proposed recognizing a wider range of sustainable forestry programs in the LEED rating system. LEED currently awards a "renewable materials" point for wood certified by the Forestry Stewardship Council, a nongovernmental organization. Proposed changes for LEED for new construction include the addition of a point for using wood and other natural materials from programs like the industry-led Sustainable Forestry Initiative, the Canadian Standards Association, and the Sustainable Agriculture Initiative.

As of press time, the USGBC hadn't signed off on the vinyl or wood decisions. Meanwhile, the stakes are rising, as more cities adopt LEED as a standard for public buildings, and some like Boston and Portland are expected to require certification for private-sector projects as well. *Ted Smalley Bowen*

Facade restoration for a New York City landmark is nearly complete



This spring, a long-term preservation project for one of Manhattan's most ornately decorated buildings will be drawing to a close. The disintegrating terra-cotta facade of Shepard Hall, the immense neo–Collegiate Gothic structure at the City College of New York, is being replaced by glass-fiber-reinforced concrete (GFRC). The effort is one of the largest terra-cotta replacement projects ever undertaken.

At Shepard Hall (above), masonry is replacing terra-cotta elements that were load bearing (top right). Before-and-after photos (middle and bottom right) show the new GFRC panels in action.

Designed by architect George Post and completed in 1907, Shepard Hall was on the verge of structural failure in 1986 when Stein White Nelligan Architects was hired to repair its terra-cotta elements, which comprised about 15 to 20 percent of the facade. The material began to crack and crumble in the 1930s, allowing water to seep through, says Carl Stein, a firm principal. Much of the terra-cotta was load bearing, with some pieces extending several feet into stone walls. As a result, its failure further undermined the building's integrity. "It was either do something or demolish the whole building, because it was going to fall down in 10 or 15 years," he says.

Back in 1986, the most durable GFRC available was a low-cost material with a limited grayish palette used chiefly in industrial structures. Stein began exploring it as an option for Shepard Hall, knowing that using terra-cotta or typical substitutes such as cast stone or architectural precast concrete for the building's facade would have been cost prohibitive. He worked with manufacturer Cem-Fill to improve GFRC's resistance to acid rain and UV light (which had been problems in the past) and make the material more flexible for pigmentation. Stein says the improved GFRC is one of the most durable, convenient materials to use in historic reconstruction.

About 72,000 pieces of terra-cotta, including more than 3,000 exterior sculptural ornaments, are being replaced with 0.5-inch-thick GFRC panels. They will serve as a decorative skin and rain screen for Shepard's facade. Supporting the panels is an adjustable skeleton of galvanized-steel brackets. This substructure will make future repairs and restorations easier, Stein says, and also eliminates compressive loads in the outer skin, since the joints can absorb movement between the GFRC panels. New interior structural masonry will replace the terra-cotta elements that were load bearing.

Some preservationists and engineers have expressed doubts about the long-term durability of GFRC. But Stein says the panels being used will actually last longer than other materials.

Using GFRC allowed Stein to recreate ornamental features in detail, which would have been expensive and complicated had other materials been used. The large dog sculptures at Shepard Hall, for example, weigh only about 500 pounds in GFRC, compared to 3,000 to 4,000 pounds had they been made of cast stone. And the firm was even able to replicate irregularities in the original terra-cotta panels. "We had to avoid making things too perfect," Stein says. "We didn't want Shepard to look like a fake Gothic Revival building." *Alex Ulam*

PHOTOGRAPHY: COURTESY STEIN WHITE NELLIGAN ARCHITECTS

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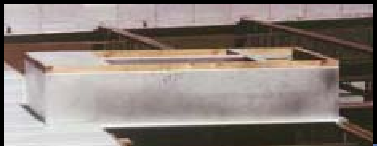

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Tech Products

New hardware, software upgrades

By James Murdock and Deborah Snoonian, P.E.

Mini-Mits XD60U
Mitsubishi Digital Electronics America
www.mitsubishi-presentations.com
Windows and Mac

Although it's smaller than a three-ring binder and weighs less than a half-gallon of milk, Mitsubishi's Mini-Mits XD60U packs powerful projection capability for on-the-road presentations and slide shows. The compact projector accepts analog, digital, and HDTV signals from laptops, desktops, and TV sets. Its bright, long-life lamp and high native resolution allow users to see crisp, sharp images and details. A password-protected security lock prevents unauthorized use at public presentation venues. At 3.3 pounds, the projector is the smallest, lightest model offered by the company.

This tiny projector by Mitsubishi packs big presentation power.

Terraserver
Terraserver.com
www.terraserver.com
Windows and Mac

Gain a bird's-eye view with this online imaging service. TerraServer.com has relaunched its Web site with an expanded array of aerial photographs and an improved user interface. The new content, which includes different image sizes and formats, is a result of the company's expanded alliances with photography providers. The revamped site also offers more efficient purchasing options.

Aerial images covering more regions, such as Boston's Fenway Park (above), are now available at Terraserver.com.

For more information on technology for architects, including reviews, vendor lists, and links, go to Architectural Technology at **www.architecturalrecord.com**.

ArchiCAD Residential
Graphisoft
www.graphisoft.com
Windows and Mac

This new application is geared to the U.S. homebuilder market and based on ArchiCAD's existing modeling technology. The company has designed the software so that model floor plans for homes, which are common in residential construction, can be easily adapted, annotated, and saved for individual client needs. Key features include an option manager so that users can create and present variations on a single floor plan with just one click of the mouse, and a wall framing tool that simplifies the design of frames and construction schedules. A notes area lets architects and homeowners keep track of comments and changes during reviews.

Graphisoft has created a specially tailored software program for the residential construction market.

Realtime
Arup Research & Development
www.arup.com
Windows only

Conceived by Arup Research & Development, this software allows users to model and explore 3D environments. It can adapt existing CAD data and 3D models, as well as create new models from 2D drawings, hand sketches, photographs, and a range of other source materials. Based on gaming technology, the software has been used to evaluate everything from appearance to issues such as ergonomics, access, and construction.

Realtime visualization software is based on gaming technology.

IMAGES: COURTESY MITSUBISHI (TOP); GRAPHISOFT (MIDDLE LEFT); TERRASERVER.COM (MIDDLE RIGHT); ARUP (BOTTOM)

Tech Products

Shade 7, a modeling and rendering program, was once only available in Japan.

GREENSPEC DIRECTORY
Product Listings & Guideline Specifications from BuildingGreen
5TH EDITION

This popular directory is also available by subscription online at www.buildinggreen.com.

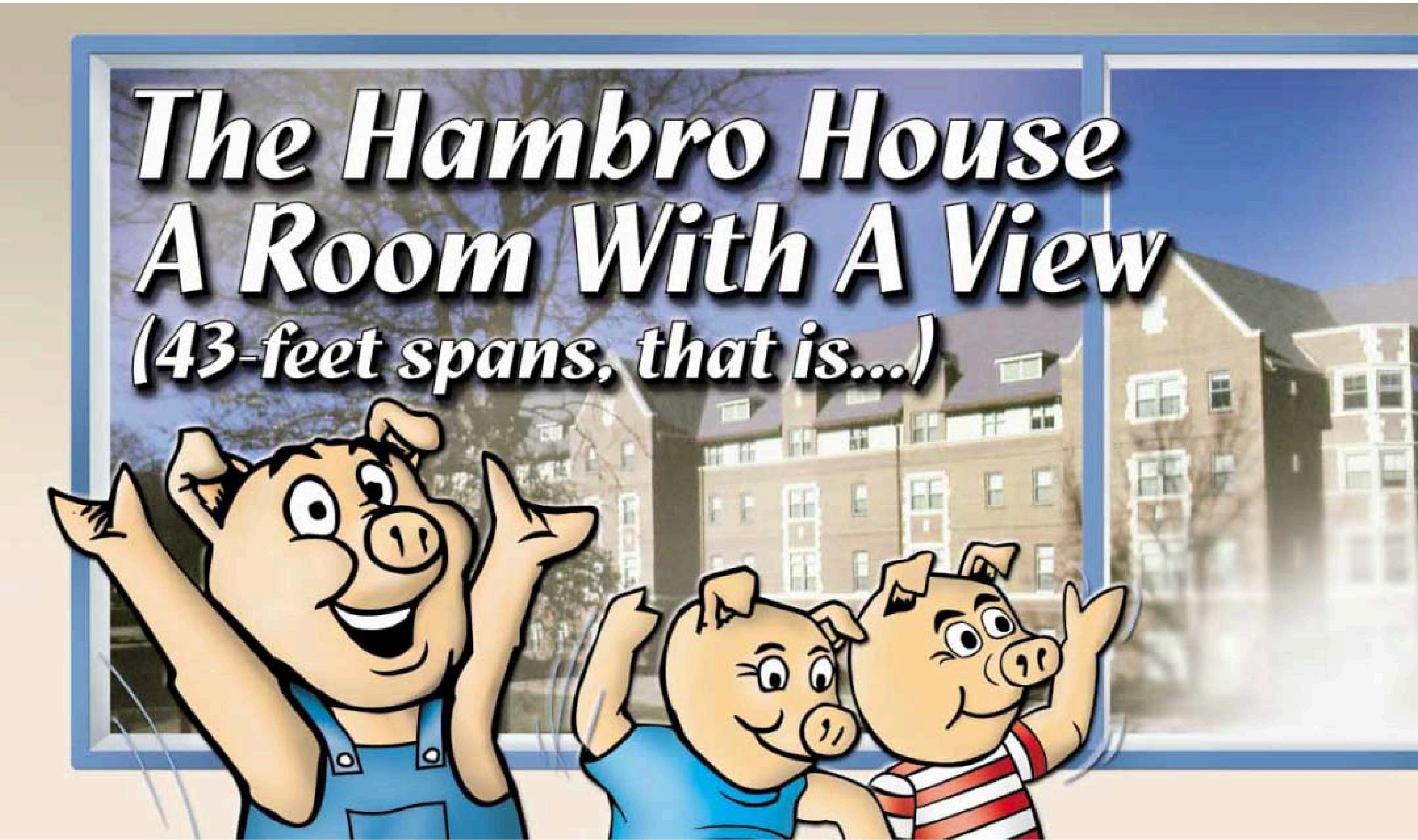
Shade 7
Curious Labs
www.curiouslabs.com
Windows and Mac

Curious Labs has released an updated version of its Shade design and animation suite for U.S. and Canadian markets. The software was once only available in Japan, where the company claims it is used by more than 70 percent of architecture firms. The software uses Bezier modeling to create complex curves and shapes. Features such as photon mapping, path tracing, ray tracing, and radiosity render detailed lighting, reflection, and soft shadows for architectural projects. Users can import 2D design information from the popular Adobe Photoshop and Illustrator programs to enrich their projects.

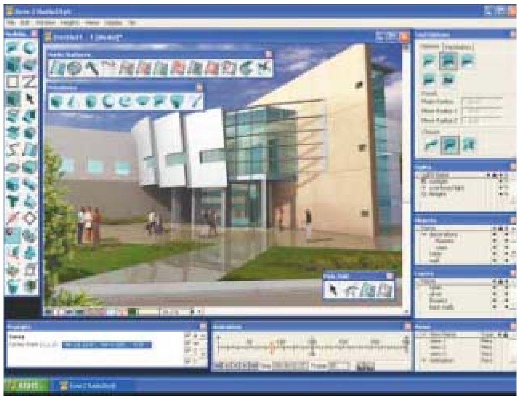
GreenSpec, 5th Edition
BuildingGreen, Inc.
www.buildinggreen.com
Available online

More than 1,850 building products are listed in the latest update of BuildingGreen's directory. The criteria for inclusion in this 464-page edition have been tightened in several areas, including improved performance standards for low-flush toilets based on new testing protocols developed jointly by the U.S. and Canada. In some categories, thresholds for volatile organic compound (VOC) levels have been significantly lowered, as well. A sample guideline specification included in the directory contains language in CSI's MasterFormat structure to assist architects and specifiers who are developing green project specifications.

IMAGES: COURTESY CURIOUS LABS (LEFT); BUILDINGGREEN (RIGHT)



The latest version of form·Z lets developers program scripts easily.



Leica's DISTOlite5 is smaller and lighter than the company's other laser meters, but boasts many of the same features.

IMAGES: COURTESY AUTO·DES·SYS (LEFT); LEICA GEOSYSTEMS (RIGHT TWO)

form·Z 5.0
auto·des·sys
www.formz.com
Windows and Mac

The latest upgrade of this 3D design software includes improvements to the programming so that its script language allows users to create their own extensions and customizations for designs—from either within the software or in a separate program. Other changes include the addition of an "information management" module that allows note-taking on the attributes of 3D objects created within a building model; the ability to create custom attributes for building elements; improved font selections; and the addition of four new primitive surfaces (paraboloids and hyperboloids) that can be used as jumping-off points for new designs. New plug-in tools automatically create shapes like bolts, frames, and gears.

DISTOlite5
Leica GeoSystems
www.leica-geosystems.com
Windows only

This laser-guided distance gauge boasts many of the same features as Leica's other surveying tools in a more compact and inexpensive unit. It can measure lengths of up to 650 feet, with an accuracy of 0.1 inch. Up to 10,000 measurements can be taken on a single set of batteries. Bluetooth technology allows the unit to communicate with wireless handheld devices or PCs. The DISTOlite5 comes with an illuminated LCD screen, built-in leveling bubble, and a hand loop and holster for easier transport. ■

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Sun control curtain wall. Courtesy VistaWall.

friendly design and serve as a case study in sustainability.

Its classrooms, carefully positioned to maximize their exposure to natural light, can be used almost year-round without electric lighting; external shades and light shelves regulate room temperature; "smart" lighting adjusts to daylight levels; and sensors turn off lights and other non-essential items in unoccupied rooms.

An extensive ventilation system and extra thermal mass in the building's concrete structure enable it to retain more heat on cold days and stay cool naturally through most of the summer. Photovoltaic panels generate about 35 kilowatts of clean solar energy.

The building also saves water through low-flow fixtures and an "eco-roof," which uses rain to grow beneficial vegetation instead of draining to the ground.

The university's Sustainable Development Plan, implemented in 2000, requires that the design principles expressed by Portland-based architect SRG Partnership, PC, in Lillis' plans be applied to all new campus building projects.

In its Lillis design, the university was shooting for LEED Silver. It has not yet been certified.

To maximize natural light, the university sought a translucent curtain wall system into which photovoltaic panels could be glazed.

"The project was designed and built to LEED Silver requirements, and the university employed curtain walls, glass entrance systems and skylights that provided diffused lighting," says Fred Grunewald, Vistawall research and development manager. ■

Recycling is the Heart of Steel

The U.S. Steel industry underwent a transformation in the 1970s, and, today, steel manufacture takes less energy and is done with one-tenth the manpower it took 30 years ago.

In 2003, almost 69 million tons of steel were recycled in the U.S. or were exported for recycling. About 88 percent of all steel products, and nearly 100 percent of steel used in beams and plates in construction, are recycled into new steel products at the end of their useful life.

"We have achieved a very efficient production process and a very high level of recycled content," says Christopher Hewitt, a LEED-accredited staff engineer with the Engineering and Research Dept. of the Chicago-based American Institute of Steel Construction, Inc. "What we are saying today," Hewitt says, "is that steel is a good choice for sustainable projects."

An emerging method of analyzing the environmental efficiency of materials is the use of embedded energy approaches, sometimes referred to as life-cycle analysis (LCA). The method involves calculating the total amount of energy associated with the production, manufacture, transportation and construction of materials, their components and by-products.

Unfortunately, LCA is still in its infancy, and comparisons are difficult, not only in structural components, but in almost every aspect of construction. No credible study has yet been done, for instance, comparing the embodied energy of structural wood products to steel or concrete in the U.S. construction market, Hewitt says.

LEED, he says, is moving slowly in the direction of life-cycle analyses that would award credits for durability and longevity, but it is unlikely that that meaningful data from such studies will be available soon. LEED, however "provides a snapshot of what is going on in the manufacture of building materials," Hewitt says, "and its emphasis on recycling and reuse means that framing with steel can earn owners 'green' credits."

The electric arc furnace (EAF) process, the primary method in the manufacture of structural beams, steel plate and reinforcing steel, now uses 95-to-100 percent recycled steel. "Recycling is second-nature for the steel industry," Hewitt says.

Because it is produced to exact specifications, on-site waste is negligible. Material from construction and demolition is easily recycled, and, because it is dimensionally stable, steel creates a tight building envelope, leading to better HVAC performance over time.

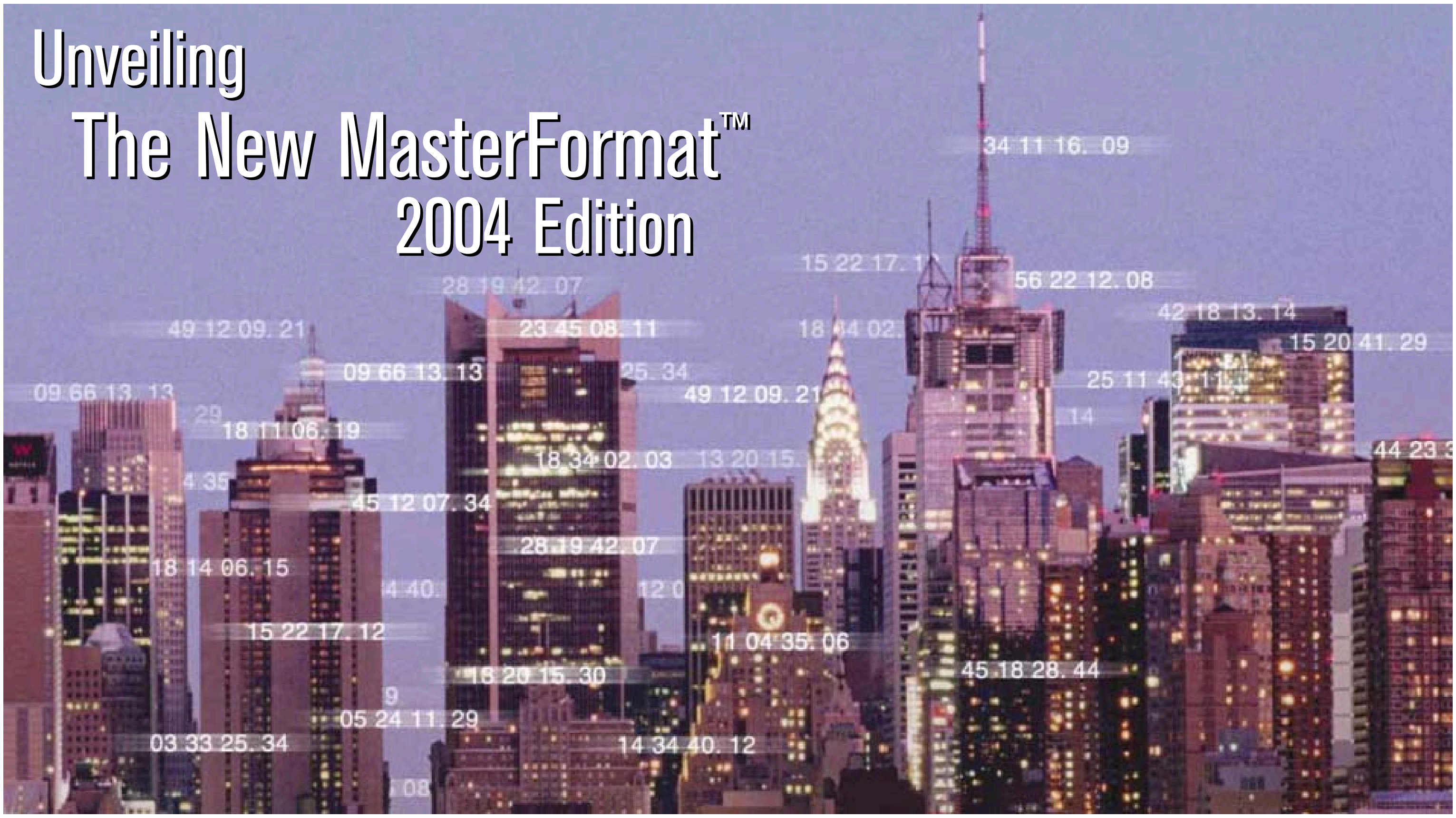
"To enhance LEED ratings," Hewitt says, "it will be important to know the percentage of recycled steel that is 'post-industrial' and the percentage that is 'post-consumer.'"

That will require data from the mill where the material is obtained. To access that information, Hewitt urges users to contact the mill directly or to visit the AISC website for recycled-content templates from member mills.

For a more thorough understanding of the recycled content of steel, Steel Recycling Institute (SRI).

Courtesy AISC.

Unveiling The New MasterFormat™ 2004 Edition



Expanded and Reorganized, the New MasterFormat Provides Architects and Owners with Tools that Save Time and Money

Released last November, MasterFormat™ 2004 Edition is the most significant revision in the 40-year history of the publication. For the first time it addresses all elements in the project life cycle; offers a comprehensive means for operating and managing facilities; provides a powerful tool to reduce the many billions of dollars lost from poor data communication; and, is built to accommodate technologies of the future. Already, leading public and private organizations are committed to making the transition to the new edition, while others are being persuaded—some albeit reluctantly, like the architect who remarked, "I hate MasterFormat, but I'm using it now because my largest financial client requires it." Clearly, MasterFormat 2004 is here to stay.

CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read *Unveiling the New Masterformat™ 2004 Edition.* To earn one AIA/CES Learning Unit, including one hour of health safety welfare credit, answer the questions on page 184, then follow the reporting instructions on page 233 or go to the Continuing Education section on archrecord.construction.com and follow the reporting instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

- *Knowledge and awareness of the form and contents of MasterFormat™ 2004 Edition and how they differ from the previous edition of MasterFormat.*
- *Awareness of the benefits gained by stakeholders who use MasterFormat throughout the project life cycle*
- *Awareness of the tools and resources available to learn about MasterFormat™ 2004 Edition and to help make the transition to the new edition*

So, what is MasterFormat? MasterFormat is a master list of numbers and titles classified by work results or construction practices, primarily used to organize project manuals, organize detailed cost information, and relate drawing notations to specifications. It is the most widely used standard for organizing specifications and other written information for commercial and institutional building projects in the U.S. and Canada. Users follow a master list of divisions, and section numbers and titles within each division, to organize information about a facility's construction requirements and associated activities into a standard sequence. The 2004 edition of MasterFormat is produced jointly by the Construction Specifications Institute (CSI) and Construction Specifications Canada (CSC) and replaces the 1995 edition and all previous editions. Over the past forty years, its system of organizing construction information into Procurement and Contracting Requirements, and technical Divisions of activities and work practices has been applied in every information resource used in design and construction in North America.

As the Dewey Decimal system for project information, it organizes information around 'work results,' rather than products. A work result is based on traditional construction practices and reflects a component or sub-system of a project that is generally designed, built, and maintained as a segment of the work. For example, there is no heading titled simply 'sheet metal,' which is a type of product. Instead, sheet metal is found in specifications

CLICK FOR ADDITIONAL REQUIRED READING

The article continues online at: http://archrecord.construction.com/resources/conteduc/archives/0502green-1.asp

To receive AIA/CES credit, you are required to read this additional text. For a faxed copy of the material, contact Marissa Wyss at *Architectural Record*, (212) 904-2838 or e-mail marissa_wyss@mcgraw-hill.com The following quiz questions include information from this material.

AIA/ARCHITECTURAL RECORD
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LEARNING OBJECTIVES

After reading this article, you should be able to:

- ***Have an increased awareness of the range of "green" products.***
- ***Understand how manufacturing is influenced by green building.***
- ***Understand how systems "integration" can improve building performance and earn LEED ratings.***

INSTRUCTIONS

Refer to the learning objectives above. Complete the questions below. Go to the self-report form on page 225. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self-report form on *Record's* website—*archrecord.construction.com*—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS

1. Today, 95 percent of all roofs in Paris are made of ________.

a. composition shingles
b. slate
c. zinc
d. tile

2. High efficiency toilets consume as little as ___ gallons per minute of water.

a. 3.2
b. 0.6
c. 1.8
d. 2.3

3. The percentage of recycled content in architectural copper is___.

a. 35-40 percent
b. 50-60 percent
c. 75-80 percent
d. 90-95 percent

4. The primary U.S. method of manufacture of structural beams, steel plate and reinforcing steel, now uses 95 to 100 percent recycled steel.

a. true
b. false

5. A new generation of high-efficiency elevators use __ percent less energy that traditional hydraulic elevators.

a. 19
b. 25
c. 30
d. 65

6. Crucial to the energy-saving scheme at Cambridge's Genzyme Center was a rooftop ________.

a. helipad
b. heliptrope
c. heliostat
d. heliometer

7. The U.S. Green Building Council is an association that "certifies" green building products.

a. true
b. false

8. New high-strength carbon fiber reinforcing grids can reduce the weight of architectural and structural panels by up to __ percent over traditional precast.

a. 25-30
b. 40-45
c. 90
d. 66

9. Zero net energy skyscrapers are___.

a. a fantasy
b. a likelihood
c. common in Europe
d. a mandate by Gov. Arnold Schwarzenegger

10. Green buildings provide owners with a means of___.

a. differentiating their product
b. ensuring the health of occupants
c. achieving significant energy savings
d. all of the above

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New MasterFormat™ 2004 Division Numbers & Titles

PROCUREMENT AND CONTRACTING REQUIREMENTS GROUP

DIV. 00 – Procurement and Contracting Requirements

SPECIFICATIONS GROUP

GENERAL REQUIREMENTS SUBGROUP

DIV. 01 – General Requirements

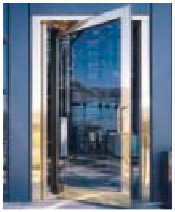
FACILITY CONSTRUCTION SUBGROUP

DIV. 02 – Existing Conditions
DIV. 03 – Concrete
DIV. 04 – Masonry
DIV. 05 – Metals
DIV. 06 – Wood, Plastics, and Composites
DIV. 07 – Thermal and Moisture Protection
DIV. 08 - Openings
- 🟩 **ELLISON BRONZE – 08 42 00**

DIV. 09 – Finishes
- 🟥 **NATIONAL GYPSUM – 09 20 00**

DIV. 10 – Specialties
DIV. 11 – Equipment
DIV. 12 – Furnishings
DIV. 13 – Special Construction
DIV. 14 – Conveying Equipment
- 🟦 **THYSSENKRUPP ELEVATOR – 14 20 00**

DIV. 15 – Reserved for future expansion
DIV. 16 – Reserved for future expansion
DIV. 17 – Reserved for future expansion
DIV. 18 – Reserved for future expansion
DIV. 19 – Reserved for future expansion



Div. 8 Openings – 08 42 00

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Div. 9 Finishes – 09 20 00

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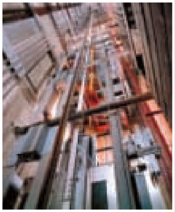

Div. 14 Conveying Equipment – 14 20 00

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FACILITY SERVICES SUBGROUP

DIV. 20 – Reserved for future expansion
DIV. 21– Fire Suppression
DIV. 22 – Plumbing
DIV. 23 – Heating Ventilating and Air Conditioning
DIV. 24 – Reserved for future expansion
DIV. 25 – Integrated Automation
DIV. 26 – Electrical
DIV. 27 – Communications
DIV. 28 – Electronic Safety and Security
DIV. 29 – Reserved for future expansion

SITE AND INFRASTRUCTURE SUBGROUP

DIV. 30 – Reserved for future expansion
DIV. 31 – Earthwork
DIV. 32 – Exterior Improvements
  ■ **HY SECURITY – 32 31 00.11**
DIV. 33 – Utilities
DIV. 34 – Transportation
DIV. 35 – Waterway and Marine
DIV. 36 – Reserved for future expansion
DIV. 37 – Reserved for future expansion
DIV. 38 – Reserved for future expansion
DIV. 39 – Reserved for future expansion

PROCESS EQUIPMENT SUBGROUP

DIV. 40 – Process Integration
DIV. 41 – Material Processing and Handling Equipment
DIV. 42 – Process Heating, Cooling, and Drying Equipment
DIV. 43 – Process Gas and Liquid Handling, Purification and Storage Equipment
DIV. 44 – Pollution Control Equipment
DIV. 45 – Industry Specific Manufacturing Equipment
DIV. 46 – Reserved for future expansion
DIV. 47 – Reserved for future expansion
DIV. 48 – Electric Power Generation
DIV. 49 – Reserved for future expansion

Div. 32 Exterior Improvements – 32 31 00.11

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The Construction Specifications Institute (CSI) is a membership association providing technical information, common organizational systems for construction information, such as MasterFormat 2004 Edition, certification and continuing education. www.csinet.org or 800-689-2900.

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describing a work result, such as 'flashing,' which could include fasteners, sealants, and other materials as well as the fabrication or installation of sheet metal. Sheet metal could also be found in another section of the specifications where it might be used to create ducts in a work result called 'air distribution.' By employing a standard system of numbers and titles with which to order work results, MasterFormat is used for organizing project manuals for bidding and contract requirements, specifications, relating drawing notations to specifications, product information, detailed cost information, and building operations and maintenance functions.

Construction projects use many different kinds of delivery methods, products, and installation methods, but one thing is common to all—the need for effective teamwork by the many parties involved to ensure the correct and timely completion of work. Standardizing the presentation of such information, therefore, improves communication among all parties involved. This helps the project team deliver structures to owners according to their requirements, timelines, and budgets.

While MasterFormat addresses the practices of the many disciplines within the architecture and engineering professions, its divisions are not intended to establish design disciplines, despite the similarity between some MasterFormat division titles and traditional discipline nomenclature. Again, its organization is structured around a work result and is independent of whether a process engineer designs a facility's HVAC, or architect designs site drainage.

Nor do MasterFormat divisions establish trade jurisdictions. Assignment of work into bid and contract packages is defined by the building owner or by the general contractor—not by the divisions and sections of the project manual. For example, all concrete work may be specified in Division 03, but responsibility for it may be assigned to several contractors or subcontractors depending upon whether it is for site work, building foundations, superstructure, or equipment pads.

It is important to reiterate that MasterFormat is not structured around product classifications. As in the sheet metal example above, products are organized by work result. Asphalt, for instance, is a material that can be used in roofing, waterproofing, pavement, to protect against dissimilar metal contact, and other work results. Galvanized pipe, too, is found in many sections because it is a material that can be used in utilities, handrails, plumbing, electrical conduit, and other types of work results.

Why was MasterFormat revised?

MasterFormat has been updated several times since it was first produced in 1963 in response to the constant evolution of construction methods and materials. But the 2004 edition is the most significant because it addresses the remarkable changes in information technology that have occurred in the last decade. While the 1995 edition served some facets of construction well, it did not fully meet the needs of the industry as products and technologies have proliferated and become more specialized and complicated. One instance of dramatic growth is the scope and complexity of computer and telecommunications networks and the integrated building automation systems used to operate and secure buildings. Reorganizing and expanding MasterFormat provides a powerful tool to harmonize the information from all types of construction projects, and facilitate and efficiently organize construction communication well into the foreseeable future.

Telecommunications is but one example of the need for change. When the original 16 divisions were created there was one telephone company. It maintained connections needing a single telephone closet for the wiring. Phone lines were used mostly for talking. Today, building owners often provide space for much more complicated equipment, and tenants choose from a myriad of providers for the array of services 'fat pipes' bring into the building. These fast-advancing telecommunications networks, part of nearly every construction project today, carry voice as well as huge amounts of electronic data and video.

While building technologies have grown in number and complexity, new construction priorities also have developed. Security and life safety, especially post-September 11th, impact project design as never before. Green building and sustainability, rarely mentioned 40 years ago, are growing concerns.

The massive amount of information generated for modern building projects has overwhelmed the 16-division format's capacity. For some time, specifiers have made do using logic and creativity to find a place for information not accommodated by the 16 divisions in project manuals. This task may not be difficult for experienced specifiers, but is daunting for the uninformed. Moreover, an arbitrary system of information does not meet the goal for MasterFormat which is to serve the many facets of the construction industry as a multipurpose categorization system. MasterFormat 2004 Edition, therefore, addresses these issues by simplifying the process of determining where specific subject matter is located.

Why MasterFormat 1995 Needed Updating

* A proliferation of various versions of "Division 17" that were being developed in building automation and controls, information technology systems, communications, railroad construction, subway construction, and heavy civil engineering. This indicated that MasterFormat 1995 was not meeting the needs of the industry.

* MasterFormat 1995 was overcrowded in many Divisions

* MasterFormat 1995 would not continue to be able to adequately address the needs of building engineering and facility services

* MasterFormat 1995 did not adequately address facility management and operations activities for the whole life cycle of construction projects

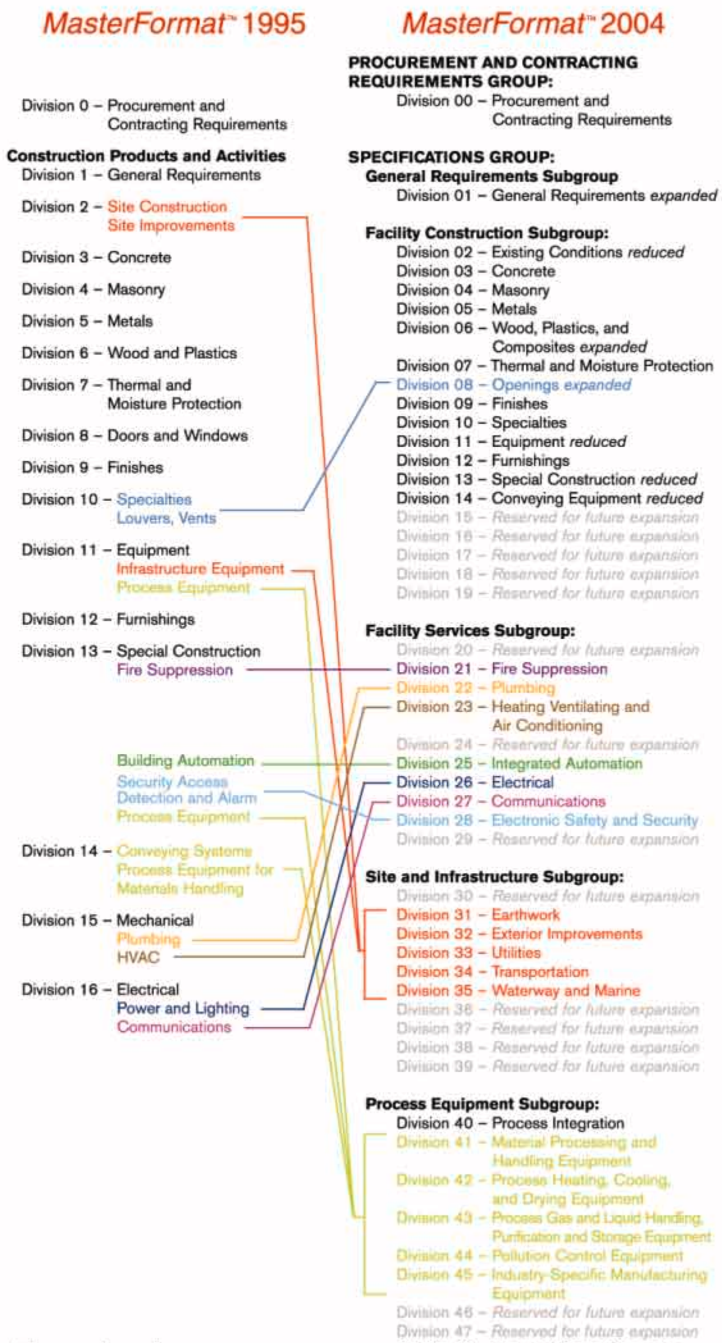
* MasterFormat 1995 did not adequately address the needs of construction other than building construction, such as civil engineering or construction for process engineering

* MasterFormat 1995 did not adequately address electronic communications and controls

* MasterFormat 1995 had inconsistencies in its structure and organization

* MasterFormat 1995 had in some Divisions become more of a product listing system than a system for organizing project manuals, as was originally intended

Comparing 1995 to 2004


MasterFormat™ 1995
MasterFormat™ 2004
Division 0 – Procurement and Contracting Requirements
Construction Products and Activities
Division 1 – General Requirements
Division 2 – Site Construction
Site Improvements
Division 3 – Concrete
Division 4 – Masonry
Division 5 – Metals
Division 6 – Wood and Plastics
Division 7 – Thermal and Moisture Protection
Division 8 – Doors and Windows
Division 9 – Finishes
Division 10 – Specialties
Louvers, Vents
Division 11 – Equipment
Infrastructure Equipment
Process Equipment
Division 12 – Furnishings
Division 13 – Special Construction
Fire Suppression
Building Automation
Security Access
Detection and Alarm
Process Equipment
Division 14 – Conveying Systems
Process Equipment for Materials Handling
Division 15 – Mechanical
Plumbing
HVAC
Division 16 – Electrical
Power and Lighting
Communications
PROCUREMENT AND CONTRACTING REQUIREMENTS GROUP:
Division 00 – Procurement and Contracting Requirements
SPECIFICATIONS GROUP:
General Requirements Subgroup
Division 01 – General Requirements expanded
Facility Construction Subgroup:
Division 02 – Existing Conditions reduced
Division 03 – Concrete
Division 04 – Masonry
Division 05 – Metals
Division 06 – Wood, Plastics, and Composites expanded
Division 07 – Thermal and Moisture Protection
Division 08 – Openings expanded
Division 09 – Finishes
Division 10 – Specialties
Division 11 – Equipment reduced
Division 12 – Furnishings
Division 13 – Special Construction reduced
Division 14 – Conveying Equipment reduced
Division 15 – Reserved for future expansion
Division 16 – Reserved for future expansion
Division 17 – Reserved for future expansion
Division 18 – Reserved for future expansion
Division 19 – Reserved for future expansion
Facility Services Subgroup:
Division 20 – Reserved for future expansion
Division 21 – Fire Suppression
Division 22 – Plumbing
Division 23 – Heating Ventilating and Air Conditioning
Division 24 – Reserved for future expansion
Division 25 – Integrated Automation
Division 26 – Electrical
Division 27 – Communications
Division 28 – Electronic Safety and Security
Division 29 – Reserved for future expansion
Site and Infrastructure Subgroup:
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Division 31 – Earthwork
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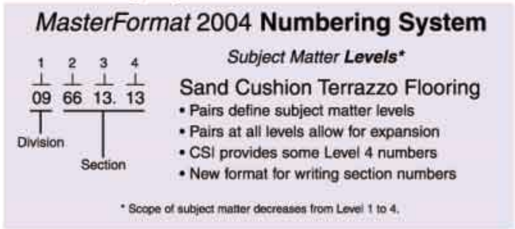
Division 43 – Process Gas and Liquid Handling, Purification and Storage Equipment
Division 44 – Pollution Control Equipment
Division 45 – Industry-Specific Manufacturing Equipment
Division 46 – Reserved for future expansion
Division 47 – Reserved for future expansion
Division 48 – Electrical Power Generation
Division 49 – Reserved for future expansion

Example of Numbering System


MasterFormat 2004 Numbering System
Subject Matter Levels*
1 2 3 4
09 66 13. 13
Division
Section
Sand Cushion Terrazzo Flooring
• Pairs define subject matter levels
• Pairs at all levels allow for expansion
• CSI provides some Level 4 numbers
• New format for writing section numbers
* Scope of subject matter decreases from Level 1 to 4.

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Users also have tacked non-standard divisions, such as Division 17, on to the 1995 edition's 16 divisions. Officially, there is no such thing as Division 17, but many different versions of it have been created in organizations across the country. They cover everything from telecommunications to railway track work to traffic signaling devices. The evolution of Division 17 reflects the inability of some users to properly determine subject matter locations, or to find a location that suited what they were attempting to specify.

Even with a Band-Aid like Division 17, critical project information could be misplaced or left out entirely, resulting in costly and time-consuming change orders, errors, and omissions. The inconsistent use of non-standard MasterFormat numbers for subjects not covered by the 16-division structure diminishes construction coordination, and users of construction documents pay for the inconsistencies in time spent searching for information, or the consequences of overlooking information that is improperly located. The old 16-division format, designed for buildings 40 years ago, also proved to be inadequate for horizontal construction work and the complex process engineering construction of today. Consequently, the 2004 Edition has expanded the existing 16-structure division and provided specification locations for categories not offered before, such as heavy civil engineering projects (roads, bridges, tunnels, utilities, etc.), and industrial construction (factories and power plants).

The New MasterFormat 2004 Numbering System

The five-digit numbering system used in MasterFormat 1995 and previous versions of MasterFormat, and how it compares with the six-digit numbering system in MasterFormat 2004, is described in the following example:

***MasterFormat* 1995: 07500 - Membrane Roofing:** The first two digits ("07") indicate the Division, Level 1 of the organizational scheme. Each of the next three digits is taken individually and represents Levels 2, 3, and 4 respectively. Typically in MasterFormat 1995, the last digit, the Level 4 number, is left unassigned, represented by a zero, to provide more flexibility for individual users.

***MasterFormat* 2004: 07 50 00 - Membrane Roofing:** The first two digits ("07") still indicate the Division, or Level 1. The next pair of numbers, in this case "50", represents Level 2, and the third pair, "00", represents Level 3. Since in this case Level 3 is unassigned, represented in MasterFormat 2004 numbers by a double zero ("00"), it means that this is a Level 2 number. And since a pair of digits represents each Level of classification, there is room to address more than ten times as many subjects at Levels 2 and 3 than there was in the 1995 edition, providing more flexibility and room for future expansion than the five-digit system was capable of supplying. In some cases a Level 4 pair of numbers has been added to give further uniform definition of the subject matter. Unlike previous versions of MasterFormat, where any work result has been defined in MasterFormat 2004, a specific number has also been assigned to facilitate improved consistent communication about more detailed subjects. The following illustrates example Level 2-4 titles and numbers for Membrane Roofing:

07 51 00	**Built-Up Bituminous Roofing (Level 2)**
07 51 13	Built-Up Asphalt Roofing (Level 3)
07 51 13.13	Cold-Applied Built-Up Asphalt Roofing (Level 4)

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The new divisions and additional sections make it easier for all involved in the design and construction process to locate information critical to understanding and executing their work.

Unprecedented industry input

The 2004 Edition is remarkable for the extraordinary effort that went into the new revision since the CSI/CSC MasterFormat Expansion Task Team chaired by Dennis Hall, FMCS, CSC, CAA, IAA, Managing Principal of Hall Architects, Charlotte, N.C., started work in 2001. In an unprecedented attempt at obtaining industry wide acceptance and participation in the development process, it drew members from many parts of the construction industry in North America and included architects, engineers, specifiers, contractors, and subcontractors, representing a wide variety of professional, contractor, trade, and manufacturing organizations. Due to the expanded scope of MasterFormat, special emphasis was placed on input for highway, telecommunications, and process engineering work.

The team's initial task was to establish guiding principles. These included:

- *Keep changes to a minimum where the current system appears to be adequate
- *Make it more acceptable to the mechanical and electrical disciplines
- *Expand as required to cover things other than buildings
- *Follow recognized classification principles
- *Provide room for future expansion
- *Maintain organizational consistency
- *Expand to cover life-cycle activities

The team solicited input, from over 500 professional and industry organizations to identify what MasterFormat users wanted and needed in a new edition. They used a wide variety of methods: a series of Stakeholders' Symposia, over 120 presentations to construction industry groups, numerous articles in national construction industry magazines, and four Internet discussion forums. In each case, commentary and input was solicited and incorporated into the process, all to help arrive at the highest quality of content and the most logical organization for the 2004 Edition. As various drafts of the new version were created, the task team sought feedback through direct contact with major organizations and companies, workshops, meetings, and Internet message boards.

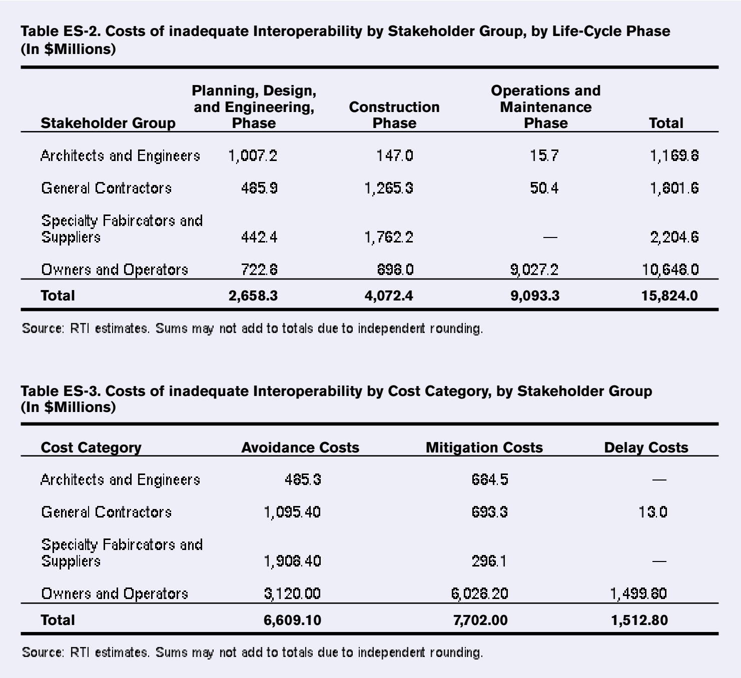

Table ES-2. Costs of inadequate Interoperability by Stakeholder Group, by Life-Cycle Phase (In $Millions)

Stakeholder Group	Planning, Design, and Engineering, Phase	Construction Phase	Operations and Maintenance Phase	Total
Architects and Engineers	1,007.2	147.0	15.7	1,169.8
General Contractors	485.9	1,265.3	50.4	1,801.6
Specialty Fabircators and Suppliers	442.4	1,762.2	—	2,204.6
Owners and Operators	722.8	898.0	9,027.2	10,648.0
Total	**2,658.3**	**4,072.4**	**9,093.3**	**15,824.0**

Source: RTI estimates. Sums may not add to totals due to independent rounding.

Table ES-3. Costs of inadequate Interoperability by Cost Category, by Stakeholder Group (In $Millions)

Cost Category	Avoidance Costs	Mitigation Costs	Delay Costs
Architects and Engineers	485.3	684.5	—
General Contractors	1,095.40	693.3	13.0
Specialty Fabircators and Suppliers	1,908.40	296.1	—
Owners and Operators	3,120.00	6,028.20	1,499.80
Total	**6,609.10**	**7,702.00**	**1,512.80**

Source: RTI estimates. Sums may not add to totals due to independent rounding.

Source National Institute of Standards and Technology Nist GCR 04-867

MasterFormat 2004 Numbering

In order to address new topics and expand the structure, the number of divisions has been reorganized into Groups, Subgroups and Divisions, and the number of divisions increased from 16 to 50. A new subgroup named Facility Construction (Division 02-19) under the Specifications Group covers general construction subjects that are similar to those in the 1995 edition. Other subgroups under the Specifications Group are General Requirements, Facilities Services, which has new separate divisions for plumbing, fire suppression, electrical, communications, integrated building systems, electronic safety and security systems, and heating, ventilation and air conditioning (HVAC), Site and Infrastructure (transportation, utility and marine construction), and Process Equipment (industrial and process engineering subjects).

To enable MasterFormat users to handle the volume and complexity of today's projects more expeditiously, the numbering scheme has been revised to allow it to more adequately cover the subjects of MasterFormat and to provide room for future addition of new subjects without restructuring the entire system. The previous five-digit numbers have been expanded to allow room for more subjects at each level of classification and thereby accommodate more consistent classification. The five-digit numbers had limitations because of the way each of the five digits were employed. The first two digits represented the Division, with the remaining three digits left to set a hierarchy of subjects within each Division. Because only a single digit was assigned for each Level after the Division, the number of possible Level 2 subdivisions within each Division was held to nine. Similarly, the number of categories available at Level 3 and Level 4, which was unassigned by MasterFormat, were also limited to nine each. In many Divisions, this small number of available spaces for information was too limiting, and MasterFormat simply ran out of room to properly address topics. This lack of room often resulted in inconsistent classification, such as the insertion of topics such as Cathodic Protection, Lightning Protection, Fire Suppression, Detection and Alarm, and Solar and Wind Energy Equipment into Division 13, rather than other Divisions such as 15 or 16 where they would fit more appropriately, simply because there was available room in Division 13 and there wasn't in the others.

The solution to these limitations was to add a sixth digit, and the six digits were arranged into three sets of paired numbers.

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These pairs of numbers allow for many more subdivisions at each level and the main six-digit number still represents three levels of subordination, as the published numbers in previous editions of MasterFormat have done. Another advantage of grouped pairs of numbers is that they, like telephone numbers, are easier to recall.

Poor information coordination costs $billions

But the value of MasterFormat 2004 Edition reaches far beyond efficiency, convenience, and improved communication. It is a potent tool that reaches where it counts: the bottom line. By providing the means for documenting and costing each life cycle stage, from planning to renovation to demolition to salvage, it offers all parties involved in the construction process—especially facility owners, a control over finances that does not presently appear to exist.

A recent federally funded study sponsored by the National Institute of Standards and Technology reports that poor data coordination costs building owners and others in the capital facilities industry a very conservative $15.8 billion a year. Titled Cost Analysis of Inadequate Interoperability in the U.S. Capital Facilities Industry (NIST GCS 04-867, http://fire.nist.gov/bfrlpubs/build04/PD./b04022.pdf), the study focuses on commercial and institutional buildings and industrial facilities. It traces facility information flow from planning and programming, through design and construction, to operation and maintenance, at each stage figuring the cost of poor communication born by different stakeholders.

Defining interoperability as ‘relating to both the exchange and management of electronic information, where individuals and systems would be able to identify and access information seamlessly, as well as comprehend and integrate information across multiple systems,’ the study reveals examples of inefficiencies. In addition to manual reentry of data, they include duplication of business functions, and the continued reliance on paper-based information management systems. Problems stem, the study reports, from the highly fragmented nature of the industry and are further compounded by the large number of small companies that have not adopted advanced information technologies. On the brighter side, the report notes, even small improvements in efficiency potentially represent significant economic benefits.

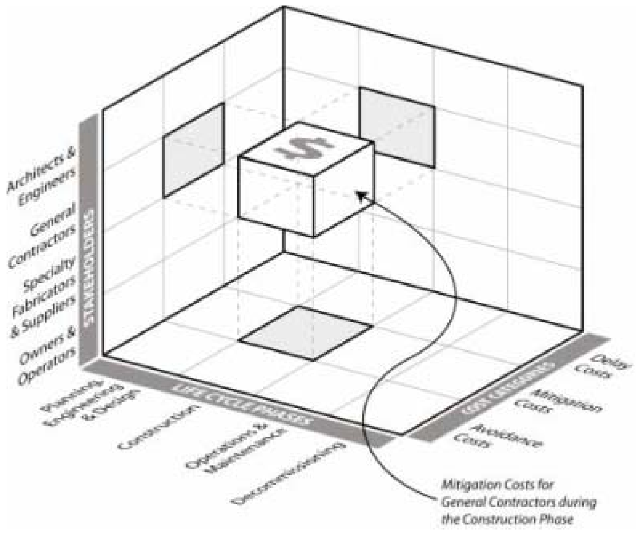

Figure ES-1. 3-D Representation of Estimation Approach of Inadequate Interoperability Cost showing all stakeholders in the life cycle of capital facilities projects. The $cube highlights mitigation costs born by general contractors during the construction phase. (Source National Institute of Standards and Technology NIST GCR 04-867)

Equally significant as the considerable sum of dollars lost is who bears the burden. Of the three general cost categories used in the study—avoidance costs before problems occur, mitigation costs incurred after problems occur, and costs of delays—owners, according to the study, pay the most, about two thirds or $10.6 billion a year, in redundant data costs, predominantly during ongoing facility operation and maintenance. General contractors and specialty fabricators and suppliers bear $1.8 billion and $2.2 billion respectively, while architects and engineers have the lowest interoperability costs at $1.2 billion—a figure comparable to the $1.3 billion costs born by general contractors during the construction phase (see figure ES-1 for a graphical depiction of mitigation losses by general contractors). Not surprisingly, the largest losses ($1.0 billion) sustained by architects and engineers occur during the planning, design, and engineering phase; their subsequent avoidance and mitigation costs amount to $485 million and $684 million, respectively.

While all parties report frustration at the lack of incentives to improve interoperability both within and among organizations, it is the owners who have the most incentive to demand tighter data specification and control and—as reported by the architect above—to require that professionals get on board with MasterFormat 2004.

CSI member Tom Rauscher, a Rochester, N.Y. communications, life safety, and automation systems consultant, spells out the savings in construction costs if voice, data and video systems are addressed fully in a building’s specifications. When they are coordinated between consultants during the design phase, problems are relatively minor, he notes (see table of cost categories page 180). But when the building is already under construction, they are harder to resolve, and, he estimates, drive up the cost of building as much as 50 percent—thus adding five to 10 percent to the facilities’ overall construction costs. He lists some of the many forms changes and delays may take:

* Tearing down and rebuilding walls to install cabling or cable pathways

* Adding closets to house switches, servers, and other electronic components.

* Expanding the HVAC system to handle the heat generated by such systems.

* Paying for express delivery of large amounts of products, such as wire and cable, to minimize schedule delays.

* Paying crews overtime to install systems to keep the overall project on schedule.

* Using higher-interest money such as a line of credit to pay for systems because they are a change order during construction. Lower-interest money via the building’s mortgage, can be used if the systems are fully specified in the project manual developed during the design phase.

* Paying additional money to install voice, data, or video systems after the building has been completed.

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To receive AIA/CES credit, you are required to read this additional text. For a faxed copy of the material, contact Marissa Wyss at *Architectural Record*, (212) 904-2838 or e-mail marissa_wyss@mcgraw-hill.com. The following quiz questions include information from this material.

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INSTRUCTIONS

Refer to the learning objectives above. Complete the questions below. Go to the self-report form on page 233. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self-report form on *Record's* website—*archrecord.construction.com*—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS

1. Information in MasterFormat is classified by _______.
a. Design discipline
b. Work results
c. Product
d. Trade jurisdiction

2. MasterFormat 2004 accommodates new technologies and construction requirements by _______.
a. Adding new divisions
b. Restructuring the 5-digit system
c. Creating a new 6-digit numbering system
d. a. and c. above

3. An NIST study on the costs of inadequate interoperability found that architects and engineers incur _______.
a. More total costs than general contractors
b. More costs in avoidance than mitigation
c. No costs during the operation and maintenance phase
d. Approximately the same mitigation costs as general contractors

4. The same study found that owners and operators incur _______.
a. The most costs during the construction phase
b. Nearly twice the costs for mitigation compared with avoidance
c. The most costs during the operations and maintenance phase
d. b. and c. above

5. Which users will have the easiest time switching to MasterFormat 2004?
a. Architects
b. Product manufacturers
c. Systems and building engineers
d. Subcontractors

6. Among the organizations adopting MasterFormat 2004 _______.
a. Sweets is the only source for construction products
b. USACE will require MasterFormat 2004 by 2008.
c. BART worked with an architecture firm to produce its master guide to specification
d. NAVFAC will not require MasterFormat for its Air Force buildings.

7. CSI is launching an initiative to support the transition to MasterFormat 2004 by offering _______.
a. Accredited customized education programs limited to CSI-members user groups across the country.
b. Accredited customized education programs for user groups across the country
c. An accredited instructor program
d. b. and c.

8. How many Divisions are included in the new MasterFormat 2004?
a. 20
b. 17
c. 75
d. 50

9. Who prepared MasterFormat 2004?
a. CSI
b. CSI and CSC
c. Architects and engineers
d. U.S. members of the construction industry

10. What is one of the majors reasons for inadequate communication of electronic specification data?
a. Reliance on paper-based information systems
b. Reluctance of owners to demand a standardized specification format
c. Slowness of major federal agencies to work together and require a specification standard
d. Absence of supporting word processing software

How to get MasterFormat™ 2004 Edition

The numbers and Titles of MasterFormat™ 2004 Edition may be downloaded in Adobe .pdf format at no cost (http://www.csinet.org/masterformat). They contain only the section titles and numbers of the document, which is enough information for many in the construction industry to begin converting . The complete version MasterFormat™ is available for purchase at www.csinet.org/bookstore/masterformat. The new edition includes section numbers and titles, explanatory notes, an application guide, a keyword index, a compact disc, and a comparative matrix.

Transitioning to the new MasterFormat™ 2004 Edition

In a joint venture with CSI, Building Systems Design, Inc. has developed a new version of BSD SpecLink that incorporates MasterFormat 2004. Released in September 2004, the relational data base system has a new global switch which allows users to change the MasterFormat arrangement of any project's specifications to either the 1995 or 2004 edition of MasterFormat at any time automatically.

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Lighting

From LEDs cloaking a retail mall to giant chess pieces aglow in a park, illumination sparks the imagination

BRIEFS

A new study from the Lighting Research Center at Rensselaer, in Troy, New York, suggests advanced lighting technologies, including LEDs, photosensors, and occupancy sensors, can help senior residents in long-term-care environments maintain independence. In a pilot demonstration study at Schuyler Ridge Residential Health Care, a 120-resident skilled-nursing facility in Clifton Park, New York, researchers installed automated LEDs and other fixtures and found that **energy-efficient lighting could improve the comfort and care of seniors,** assist the nursing staff during nightly rounds, and help residents navigate hallways. Many available lighting technologies can be easily adapted to support an older person's visual system and physical limitations, the study found.

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James Carpenter Design Associates; Carpenter/Norris Consulting
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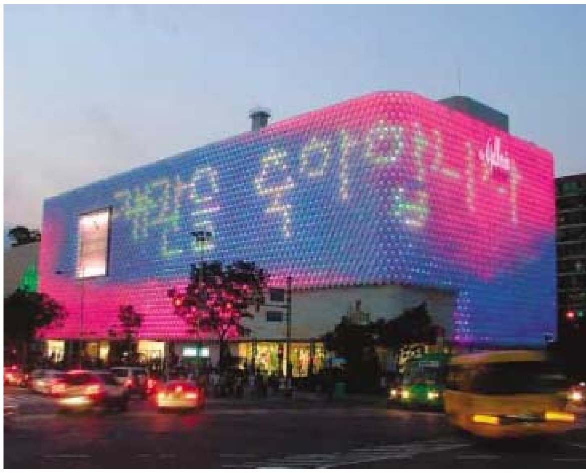
The members of a community chess club may be unlikely sources of inspiration for the lighting of a pocket park. To redesign an underused public space in Glendale, California, however, the multidisciplinary design firm Rios Clementi Hale Studios consulted with an active group of local players to learn about the strategy and history of the game. The members, many of whom said they played at night following work or school, desired a place where overhead floodlights would not cast heavy shadows on game boards, and where illumination was bright enough to make participants feel safe later into the night. At the new Chess Park, five incandescent light towers are abstractions of chess pieces themselves, while evoking the grace of Noguchi lanterns or Brancusi sculptures. And to ensure that the chess park would remain focused on the gaming program, the design team also enlisted an expert—an ex-tournament skateboarder—who reviewed design details and table placement so skateboarders wouldn't be tempted to take over elements as jumps for an extreme sports run. Now chess players sometimes occupy the park until 2 or 3 a.m., with local patrons of the nearby theater and restaurants stopping by to take in tournament action when they use the thoroughfare as a pedestrian route.

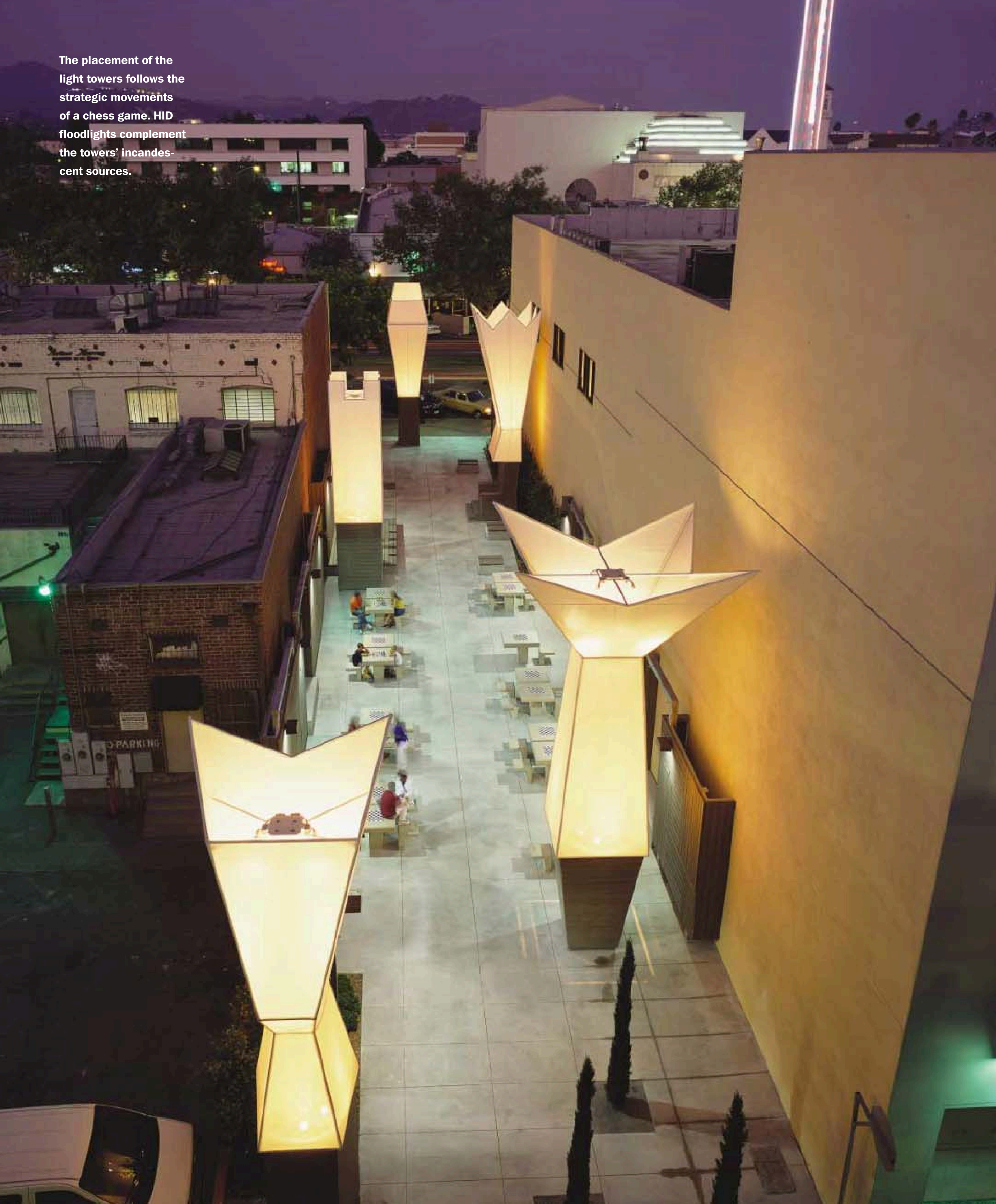
For an addition to the convention center in Austin, Texas, a colorful glass scrim accompanied by photovoltaic panels filters daylight into interior spaces, and lends the facade a high-tech sheen. The design team of Carpenter/Norris Consulting with James Carpenter Design Associates also engineered a "skywedge" that injects daylight into a prefunction space deep in the heart of the complex. Two parallel wall surfaces glow with diffuse light supplied by glazed skylights; convention attendees get a sense of outdoor weather and daylight conditions while heading to the next session.



In Seoul, South Korea, The Galleria was in need of a fashion makeover. A concrete-box mall built in the late 1970s, it recently harnessed lighting to reinvent itself. Arup Lighting, working with architects UN Studio, has wrapped the facade with a new cloak of light-emitting diodes (above). Video signals programmed from a laptop create an ever-changing light show of color, text, and graphic images that fade across the glass-disk surface. Where once the bland building attracted little attention, its new coat of many colors has turned it into a local tourist landmark—another case where light triumphs over architectural blight. *William Weathersby, Jr.*

PHOTOGRAPHY: COURTESY ARUP LIGHTING

The placement of the light towers follows the strategic movements of a chess game. HID floodlights complement the towers' incandescent sources.



Rios Clementi Hale Studios turns an alley into a community hub at **Chess Park** in Glendale, California

By Leanne French

For years, the city government of Glendale, California, studied how to redevelop an underused passageway off Brand Boulevard, a main thoroughfare. Originally built to connect a parking lot to surrounding shops and the historic Alex Theater, the 4,500-square-foot corridor was a municipal eyesore, with concrete paving, basic benches, and minimal lighting. Fearing the space would fall into further disuse, the city teamed with the Glendale Chess Club, an active group that was seeking a dedicated area where its members could play matches. The multidiscipline design firm Rios Clementi Hale Studios was commissioned to create a pocket park that would engage the community while visually enhancing the pedestrian route.

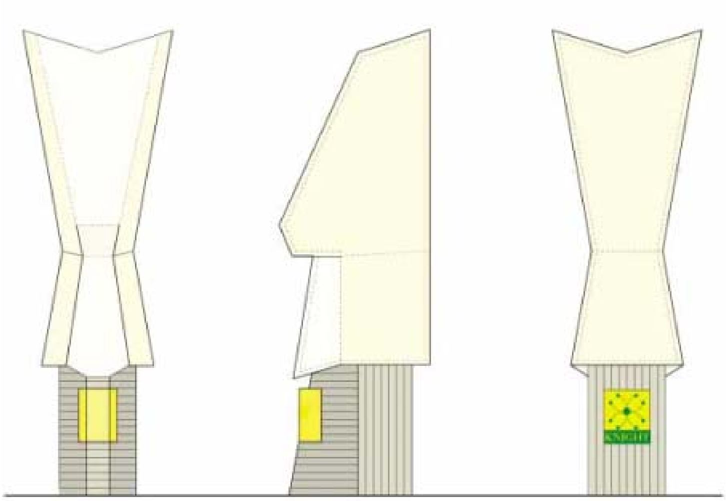
During design development for Chess Park, the project team looked toward the centuries-old traditions and lore of the game itself. "The more we learned, the more we felt that this park could be rich with forms that allude to the history of chess," says project designer Samantha Harris, who researched the evolution of game pieces. "The game started in India, and the pieces initially correlated to the Indian army. It was fascinating to learn how the form of the game had changed across cultures and religions." That transmutability inspired the architects to plot abstract, illuminated forms to anchor the park.

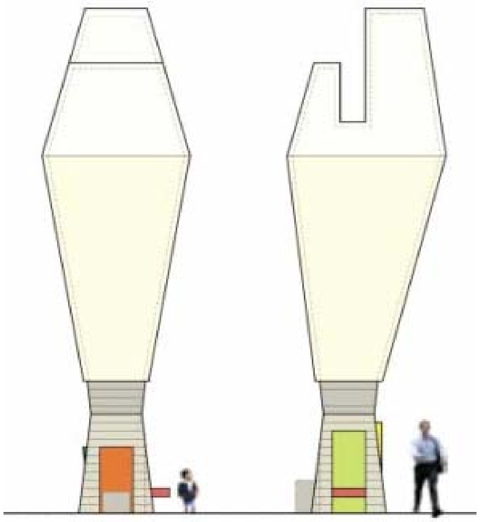
The firm's interpretation of ancient chess pieces evolved into five 28-foot-tall light towers that not only identify the area's function as a chess park, but create an iconic presence similar to the neon-lit spire of the neighboring Alex Theater. "Originally, the passageway was overlooked because it was dim and didn't have the impact that the Alex and some of the storefronts do," says project designer Anthony Paradowski. "We wanted to create a lighting element on a similar scale."

"There was also a perceived lack of security," adds Harris. "Giving light and warmth to the site would bring in the chess players, who could activate the space and enhance security for passersby at night."

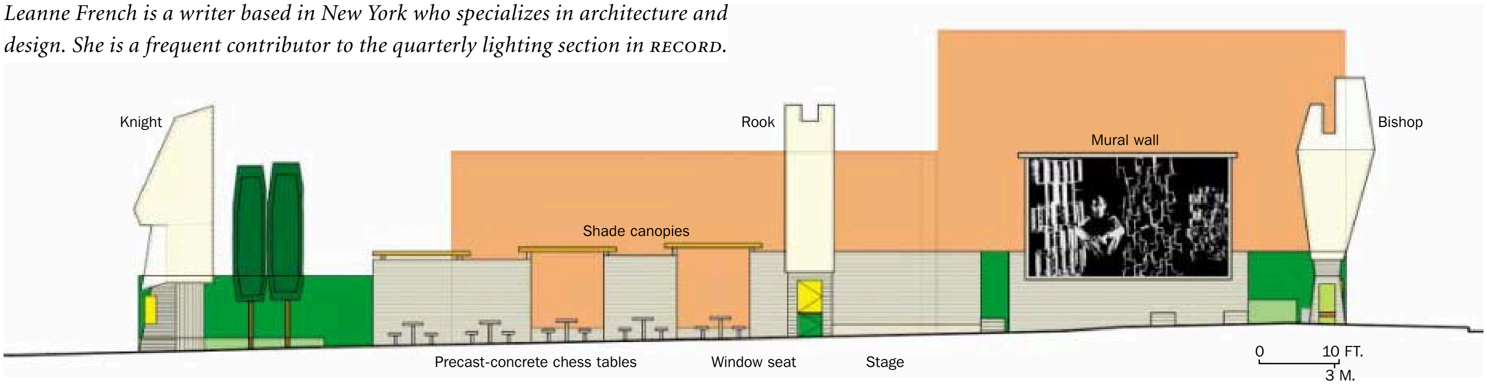
To construct the towers, which evoke the sculptural qualities of large-scale Isamu Noguchi lamps, the project team worked with fabricator and engineer Carlson & Co., which has built many works for artists such as Claes Oldenburg and Jeff Koons. The towers are constructed of

Leanne French is a writer based in New York who specializes in architecture and design. She is a frequent contributor to the quarterly lighting section in RECORD.





The gaming zone is arranged with 16 concrete chess tables and ample seating for the club. The light towers (left and above) cast incandescent light. A buffer zone, where the knight tower stands sentry (at far left in elevation below), alerts pedestrians they are heading toward traffic.



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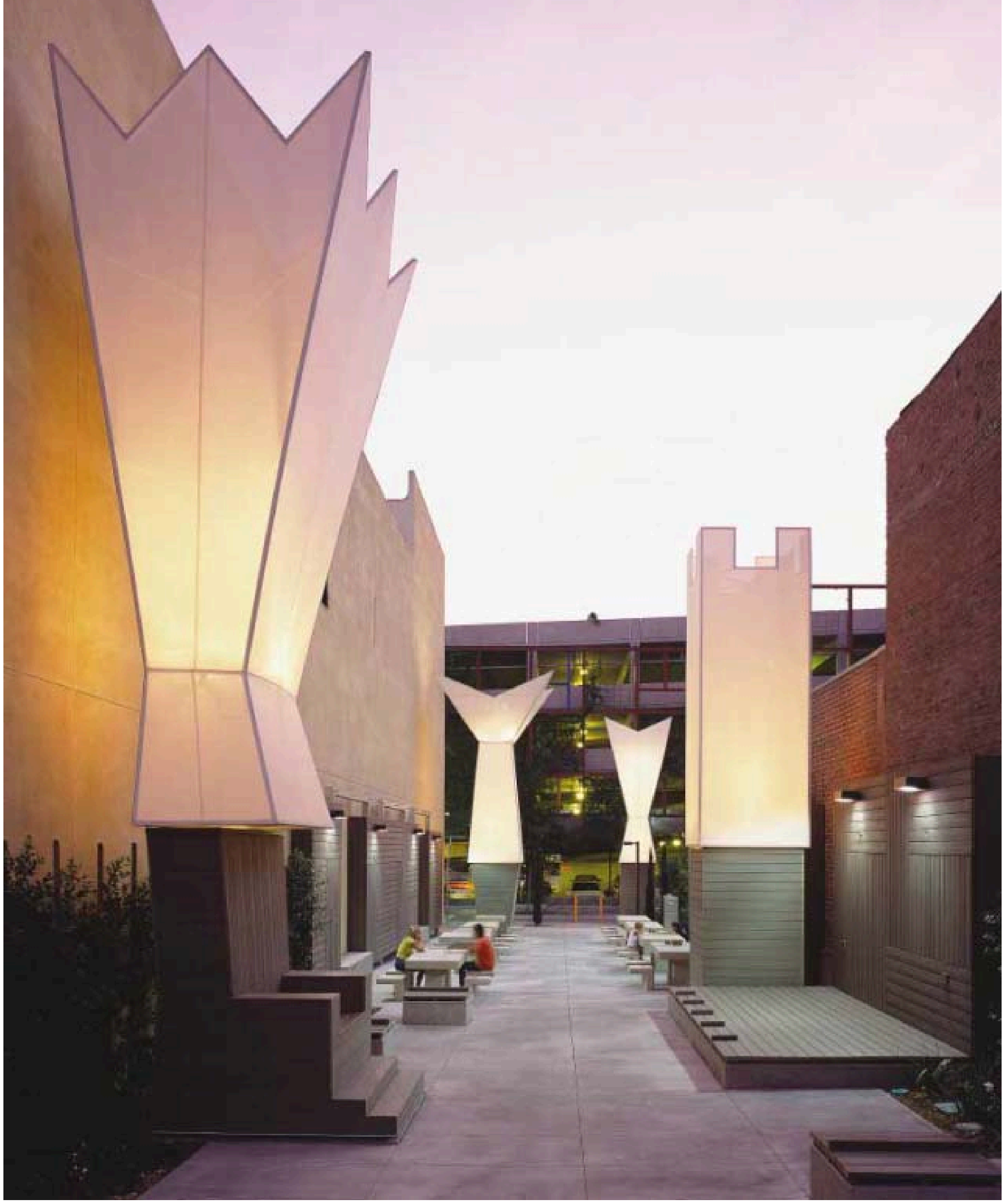

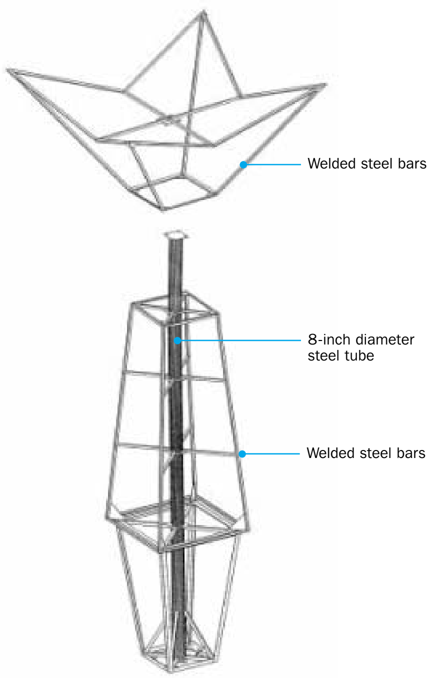

LIGHTING TOWER STRUCTURE

Touring sites around the city armed with light meters, the designers scouted bright exterior areas where people congregated, took readings, and mapped out similar light levels for towers (above) that would suit the players in Chess Park (left and below).

steel rods and a composite of wood and recycled plastic, topped with synthetic canvas. Four 100-watt incandescent lamps illuminate each tower, casting a warm glow. The white light of additional HID street lamps supplies an ample 9 foot-candles for game-playing. A bishop tower marked with park signage stands at the entry of the Brand Boulevard zone. The king tower presides over a storytelling throne that supports community book readings. A platform serves as a performance stage, while the rook tower provides storage and technical support. Getting into the game, a nearby store loans chess pieces to patrons of the newly active center. ■

Project: *Chess Park, Glendale, California*

Architect, landscape architect, lighting designer: *Rios Clementi Hale Studios—Mark Rios, FAIA, Frank Clementi, AIA, principals; Anthony Paradowski, Samantha Harris, project designers; Ola May*

Engineers: *PEI Engineers (electrical); John M. Cruikshank Consultants (civil); Grossman & Speer Associates (structural)*

General contractor: *Frederick Towers*

Sources

HID luminaires: *RUDD*

Incandescent lamps: *Sylvania*

Tower fabrication: *Carlson & Co.*

Composite: *TREX*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

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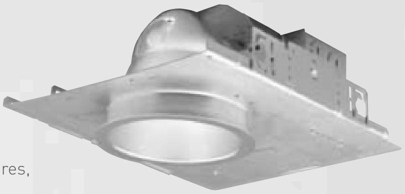


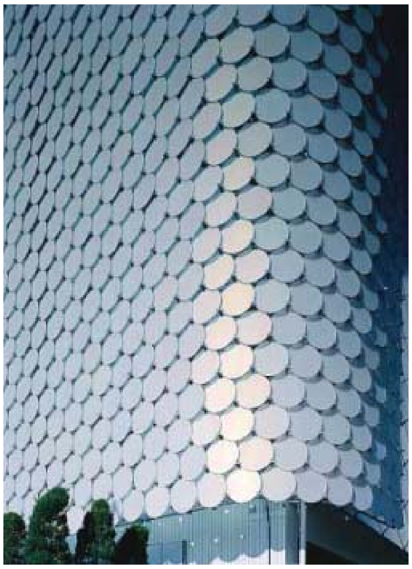
PROFESSIONAL LIGHTING EQUIPMENT BY prescolite

An illuminated skin designed by Arup Lighting and UN Studio transforms **The Galleria** in Seoul

By Alice Liao

In the business of fashion, seasonal changes, social preferences, and cultural trends all fuel an underlying belief that we are what we wear. It seems only fitting, then, that the Galleria retail center in Seoul, South Korea, has undergone a makeover to better reflect the glamour of its merchandise. After a year-long renovation by architects UN Studio collaborating with Arup Lighting, the retail complex now dazzles customers with a luminous cloak of color-changing glass disks unfolding into a brightened interior landscape.

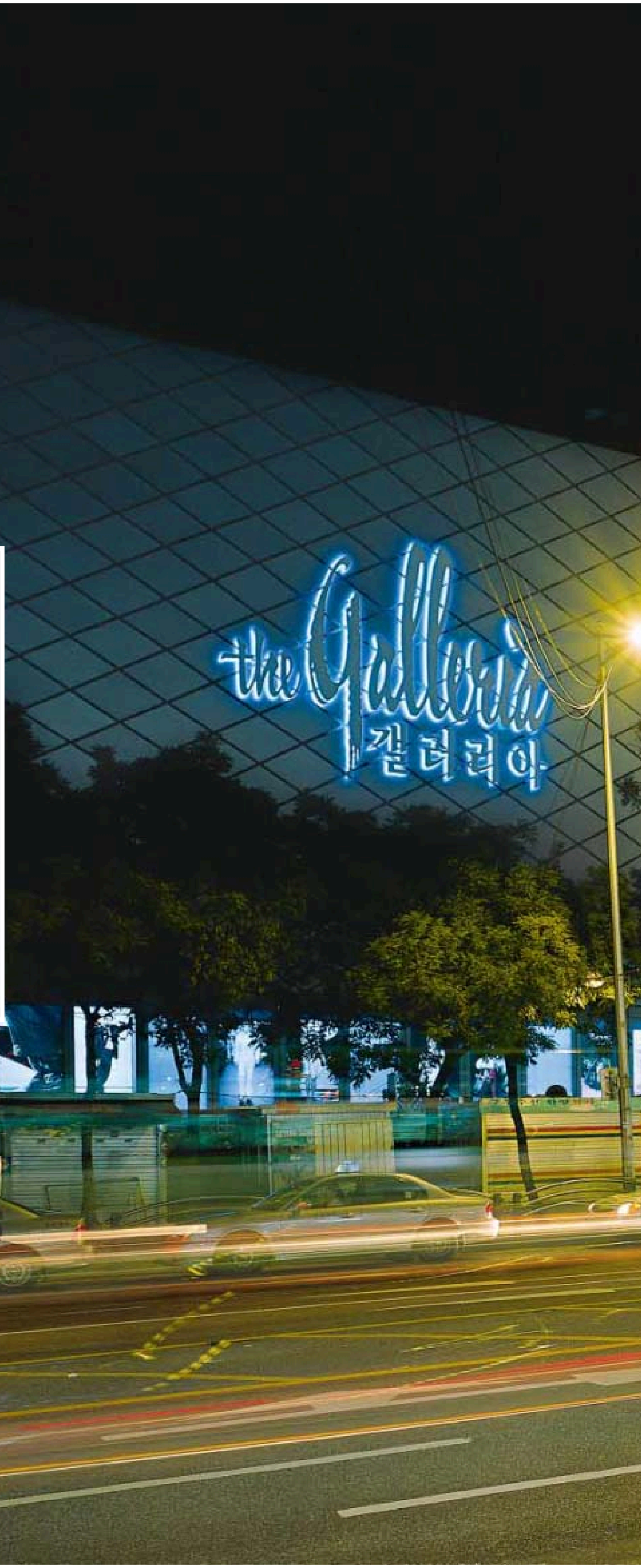
One of seven specialty department stores operated by Hanwha Stores Co., Ltd., the Galleria is a showcase for high-end fashion brands such as Chanel, Prada, Gucci, and Louis Vuitton. Its public face, however, was a windowless concrete box built in 1979. For Arup principal lighting designer Rogier van der Heide, who worked closely with the architects, the issue of matching exterior to interior was only part of the challenge. "I wanted to embed the department store in the society of Seoul," he says, "creating a revamped building that people talk about and respond to."



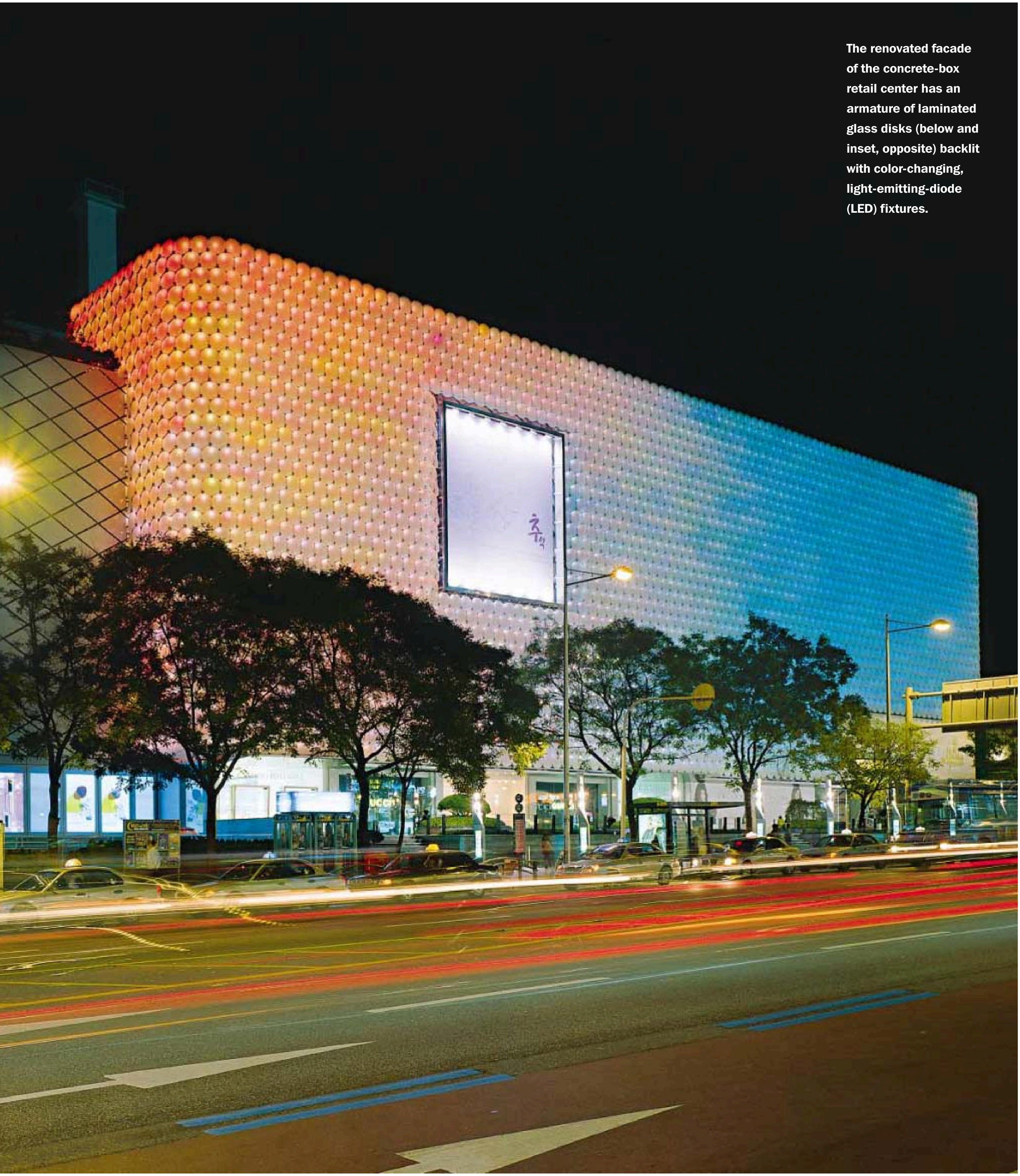
By 2003, the Galleria, located in the city's fashionable Apgujeong-dong district, had remained a popular destination for local shoppers and foreign visitors, but sales were lagging. With low ceilings and exposed HVAC and lighting systems, "the interior spaces were dense and crowded," says UN Studio project architect Astrid Piber. The renovated interiors were inspired by the fashion world, situating customers as the focus of designer boutiques, like models on a runway. Shoppers circulate via glossy catwalks illuminated from above by a continuous lighting ele-

Alice Liao is a freelance writer based in Teaneck, New Jersey. She frequently writes about lighting design and architecture.

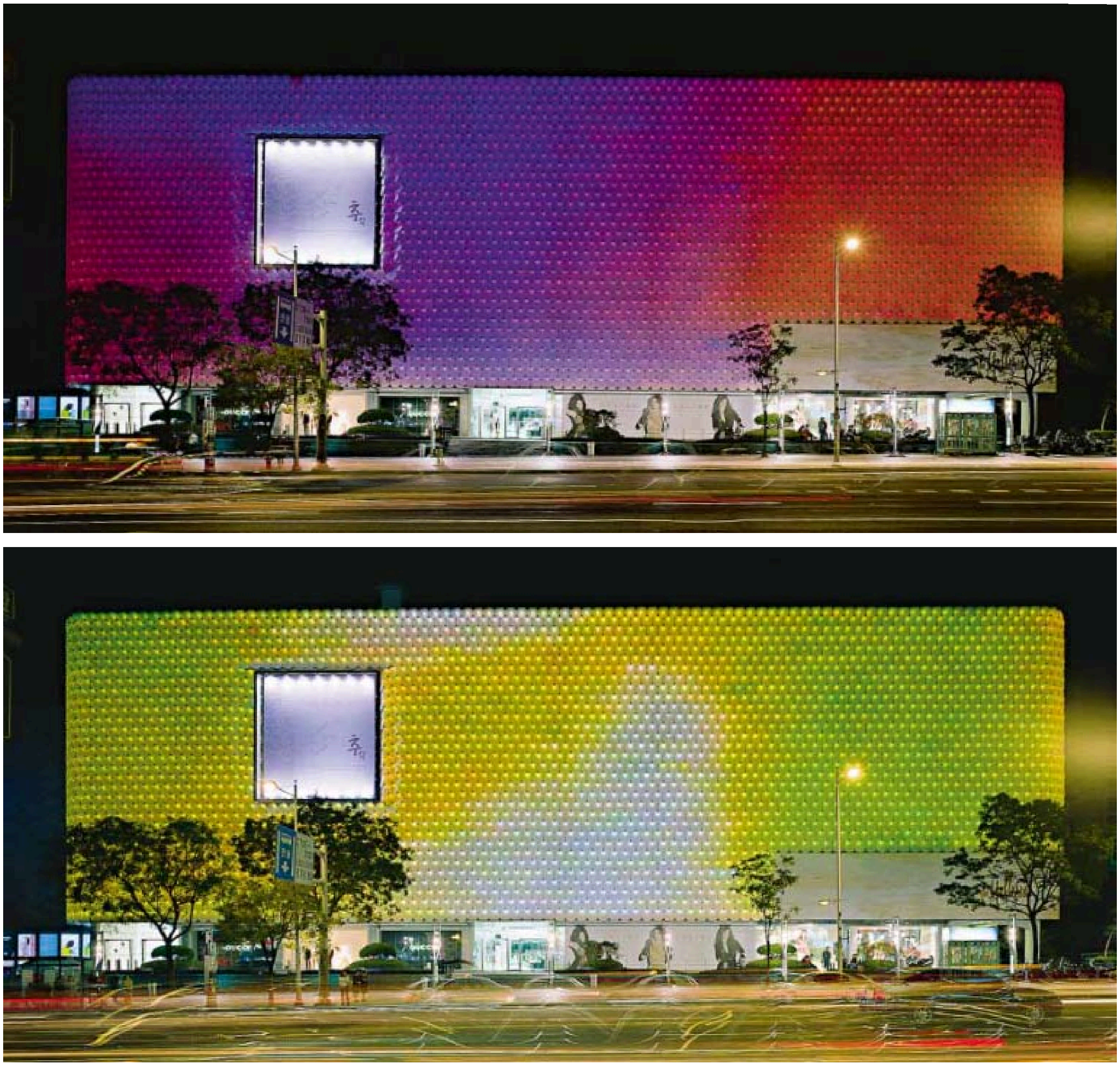
Project: *The Galleria, Seoul, South Korea*
Architect: *UN Studio—Ben van Berkel, Caroline Bos, Astrid Piber, Ger Geijzen, Cristina Bolis*
Lighting designer: *Arup Lighting—Rogier van der Heide, associate director/lead designer; Simone Collon, designer; Bob van der Klaauw, on-site technical supervisor*
Local lighting/engineering partner: *EON/SLD, Seoul*



PHOTOGRAPHY: © CHRISTIAN RICHTERS



The renovated facade of the concrete-box retail center has an armature of laminated glass disks (below and inset, opposite) backlit with color-changing, light-emitting-diode (LED) fixtures.

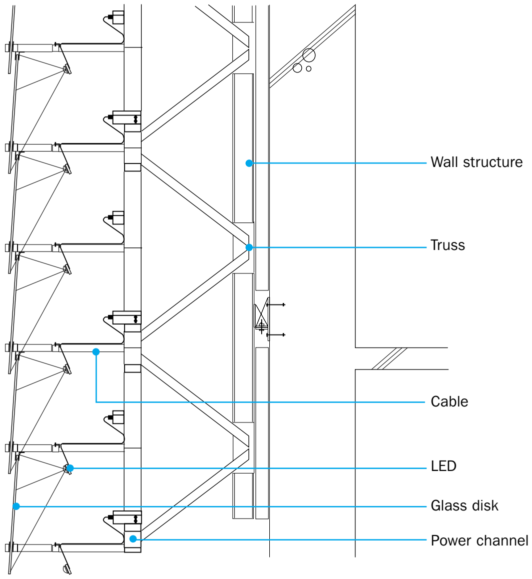


Video signals fed from a laptop into the on-site controls can change the patterns and hue of the illuminated facade (right two). The programming allows updates 20 times per second. Glass disks are supported by a new steel structure affixed to the facade (diagram, below right).

ment integrated into the ceiling. The lighting reinforces directionality and softly tints corridors to assist with wayfinding. Cold-cathode lighting with color filters focused on a new escalator provides further orientation.

While the upgrade required an overhaul of the center's interior architecture, its facade lighting demanded a solution that would leave exterior walls intact. The design team decided to swathe the building with a "fabric" of 4,330 glass disks, each backlit with a custom light-emitting-diode (LED) fixture. The disks measure 850 millimeters (2.8 feet) in diameter and are composed of two sheets of frosted glass with a dichroic filter. Mock-ups tested glass opacity, a critical consideration for an area teeming with traffic and illuminated signage. Too little opacity, notes Van der Heide, would have created glare for passing motorists, while too much would have diminished the effect of nighttime lighting. The Galleria's upscale presence also required a balance between subtlety and visibility to distinguish the retail center from other signage and lights in the vicinity, adds Piber.

The disks are secured to the building via a steel frame that diverts the added load to a series of existing columns. Each disk weighs roughly 35 to 45 pounds, so mounting the glass directly onto the concrete wall panels was untenable. "We had to construct a new screen in front of the existing facade to serve as the background for the glass structure," says



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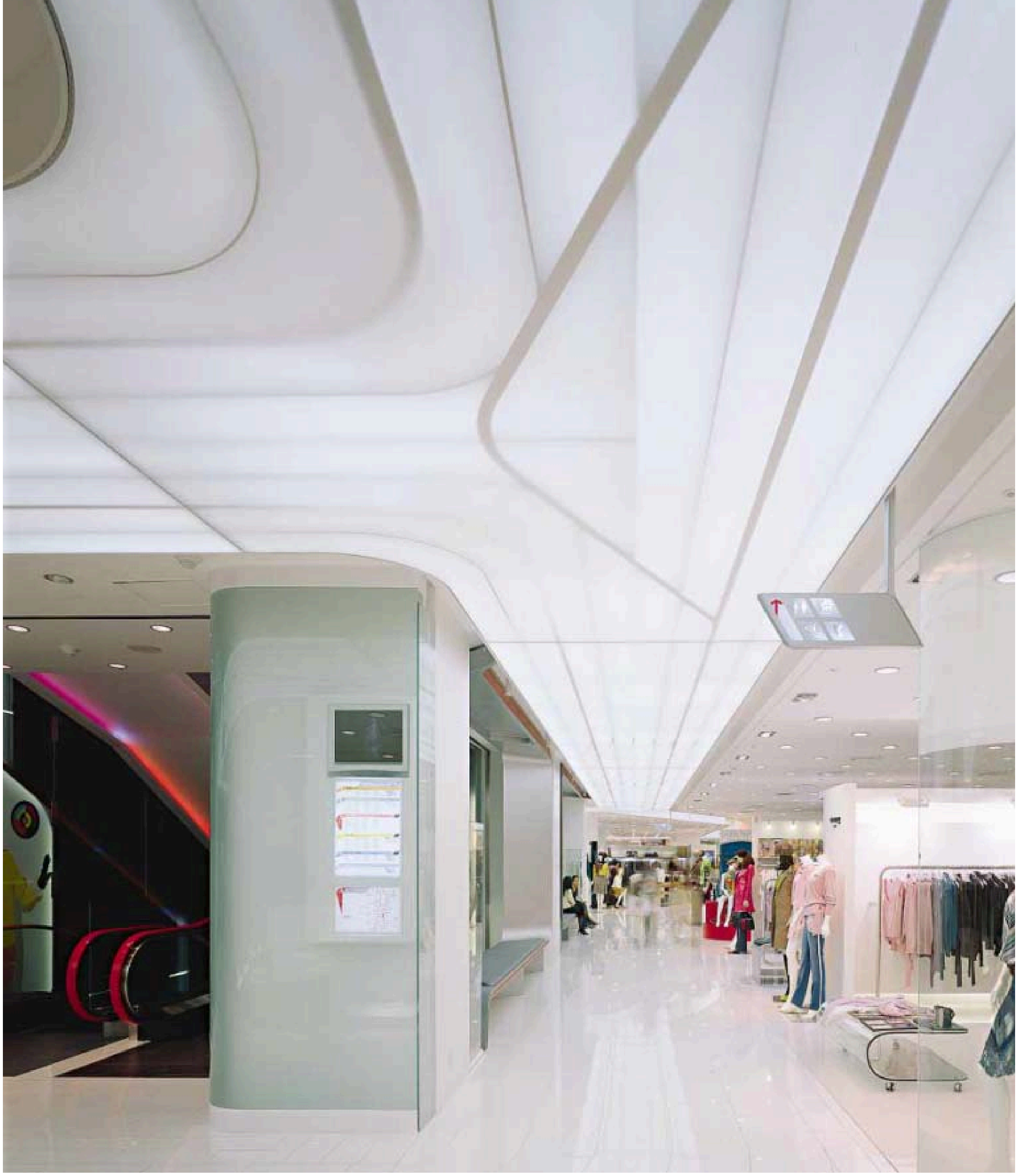

The renovated interiors of the Galleria feature continuous, illuminated ceiling elements that mask HVAC systems while seeming to visually heighten the volume (left). The softly tinted corridors cue circulation routes.

Arup structural designer Arjan Habraken. Tripods, clamped onto the rims of the disks, fasten them to the frame in groups of three.

During the day, dichroic filters give the facade a green and amber shimmer. At night, the disks become a field of rolling colors and slow kinetic effects that metaphorically mirror the fluidity of fashion. Mounted on custom brackets, all fixtures are lamped with four LEDs: two green, one blue, and one red. The combination, says Van der Heide, eliminates the pinkish tones of full-color LEDs, ensuring a more consistent white light and color balance. Because of the fixtures' asymmetric throw, which places hot spots off-center, the disks appear as glowing spheres, resembling pixels in a video screen. The lights are individually controlled with a complex DMX-based system that runs 15,000 channels of information concurrently, with updates occurring 20 times per second.

The dimensions of the facade prevented Van der Heide from programming the lighting conventionally, he says. Instead, he turned to video signals, which allow greater freedom in changing patterns. Technicians can export a file from a laptop directly into the lighting-control system. A modified, rack-mounted PC and an array of technical accessories convert the DMX signals into power that is regulated to control light intensity. "Typically, you adjust the voltage to dim a light, but when driving LEDs, you adjust the current," Van der Heide says.

The Galleria's new "dress" has created a stir in Seoul. Passersby stop to watch and even photograph the changing hues blazing and fading across its facade, where fashion meets fluid architecture. ■

Sources

Custom LED fixtures and color mixers: *Lumiled; Xilver*

Lighting controls: *Xilver; Windows XP; e:cue*

Power supply: *APS*

Ethernet switch: *3Com*

Wireless access point: *D-link*

Custom laminated glass: *Dong Shing; CGE*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

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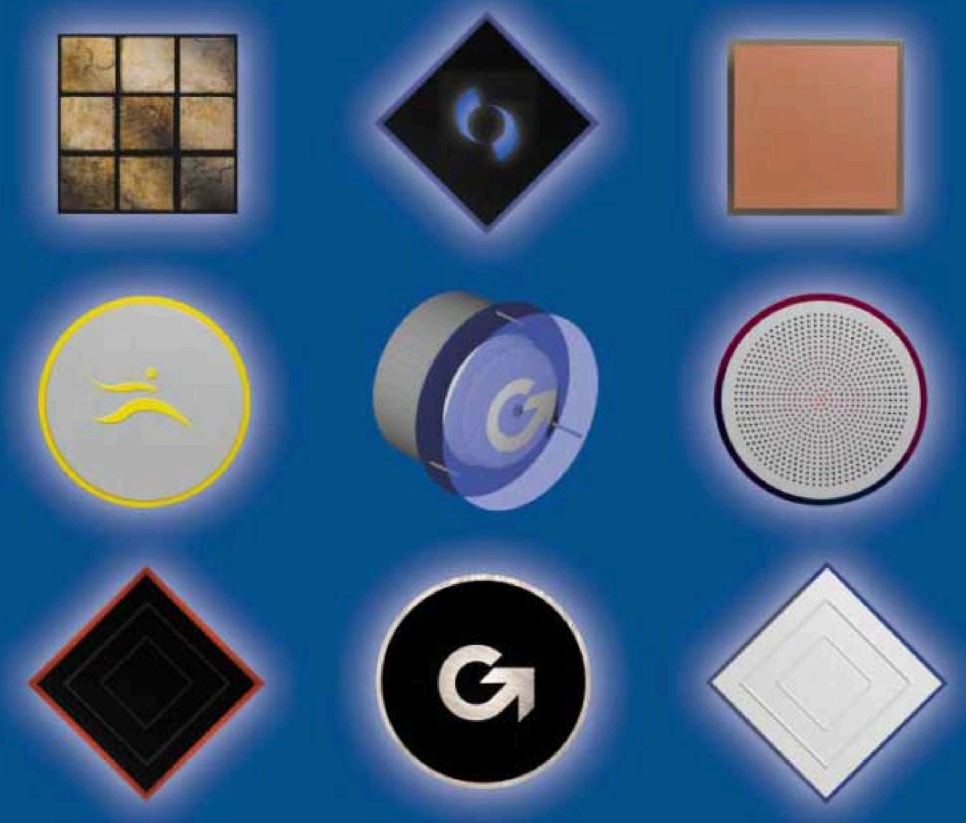

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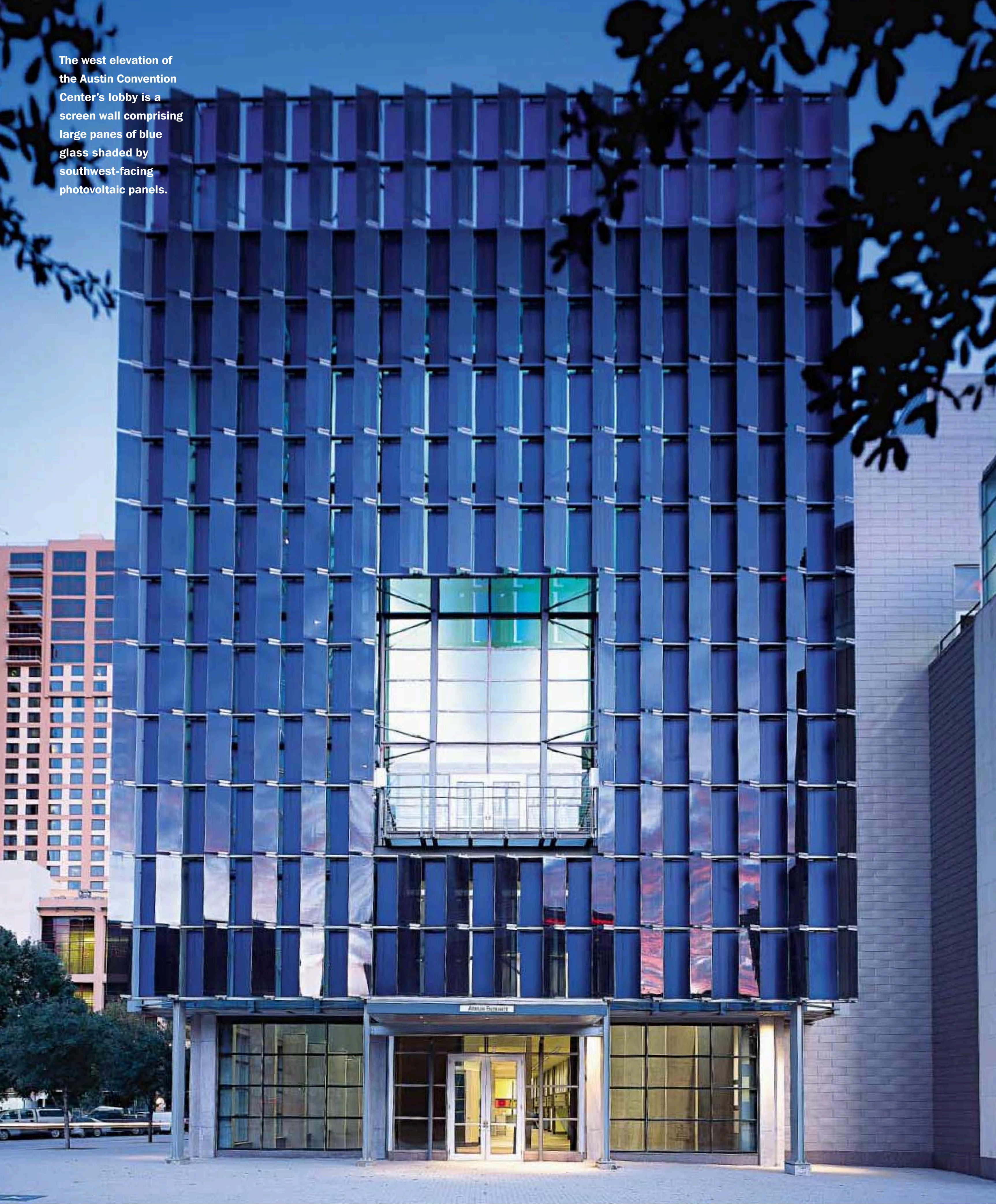


The west elevation of the Austin Convention Center's lobby is a screen wall comprising large panes of blue glass shaded by southwest-facing photovoltaic panels.

A high-tech, photovoltaic screen wall gives the **Austin Convention Center** a remarkable new front door

By Charles Linn, FAIA

A blue-glass screen wall shaded by an array of photovoltaic panels gives the Austin Convention Center's daylit entry pavilion a look that's in keeping with the high-tech sheen the central-Texas city has acquired. Meanwhile, it establishes a strong connection with the city's historic and central business districts.

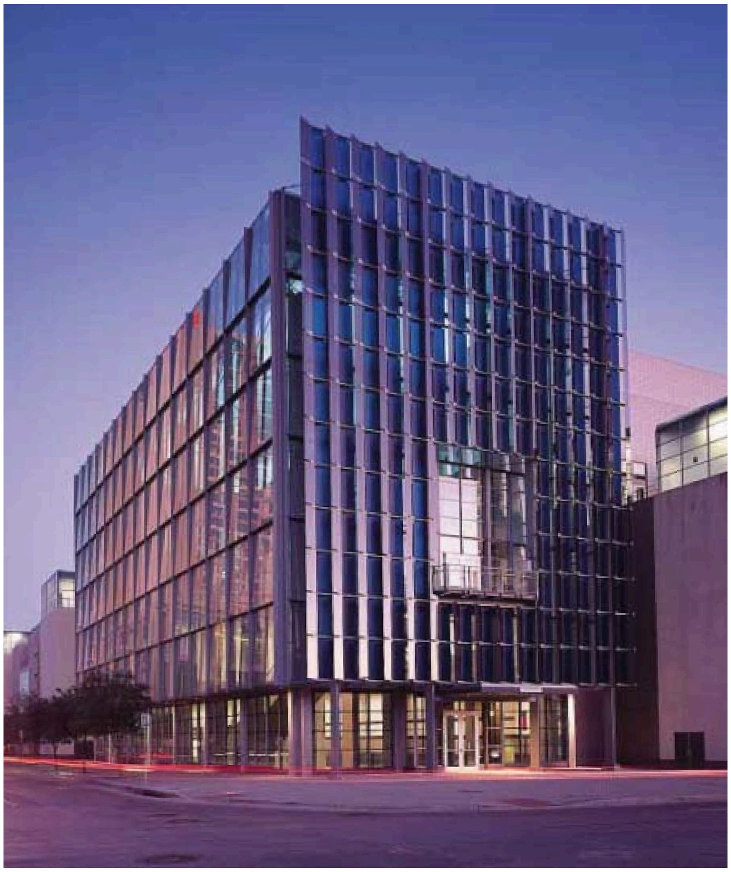
Larry Speck, FAIA, is a design principal for PageSoutherlandPage, one of three architectural firms that formed the Austin Collaborative Venture, which designed the addition. "The plan of the original convention center was square and covered the southernmost four of the site's six blocks," he says. "We always knew we would expand onto the remaining two blocks to the north. Those blocks face the historic district and a park established when Austin was first platted in 1839. Many conventioneers approach the site's northwest corner from Austin's downtown as well."

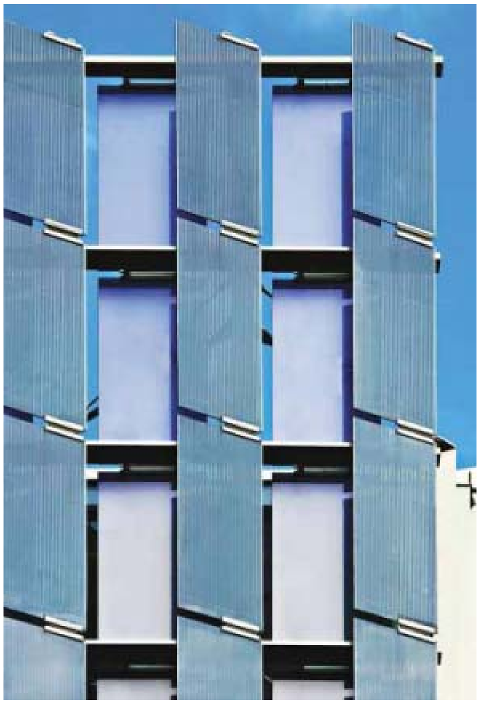
This suggested a rectilinear plan for the entry pavilion, with one long glass wall facing the park on the north and a narrow glass wall facing west. But there was one more wrinkle. Since the original convention center was built in 1992, Austin had gained a reputation as a locus of technical innovation and become a go-to destination for high-tech-themed trade shows. "These events were entirely different than those we anticipated when the building opened," Speck says, "so we determined that the main entrance had to present a sophisticated face to the city. The west elevation really offered us the best opportunity to do this. We wanted daylighting, photovoltaic (PV) panels to harvest energy, and the wall to indicate that this was the building's primary entry."

But west-facing walls here "take a real thermal drubbing during the summer months," points out David Norris, of Carpenter/Norris Consulting, which conducted the daylighting analysis of the pavilion. To prevent this, James Carpenter Design Associates and Arup created designs for both the entry pavilion and a PV-screen wall that could shield its west elevation. These were developed into final form by PageSoutherlandPage and Architectural Engineers Collaborative.

At its bare essence, the PV-screen wall is a large frame that holds 2-foot-by-7-foot sheets of deep blue glass. Speck says blue was chosen by consultant James Carpenter because in glass the hue is extremely pure and brilliant. The screen stands about 12 feet in front of the entry pavilion's west wall. Norris says the blue glass only transmits 2 to 3 percent of the light that strikes it. Even though this would seem to be nearly opaque, the afternoon sun in Austin is so bright that the amount of light the screen wall transmits to the pavilion's clear west wall is very close to the amount transmitted by its north wall. Both of these walls are made of clear glass, although the glass on the north is lightly fritted. The screen wall is supported vertically by a row of steel columns and laterally by horizontal rods and cables that tie it back to the building.

The blue-glass panels are themselves shaded by PV panels. Each is mounted at a 30-degree angle to the face of the blue glass. At this orientation, the panels' power output should peak on both early-June or mid-July afternoons. At that time, the panels will be putting power back





Each glass panel in the north-facing curtain wall (left in photo above) is slightly angled toward the sky in order to break up the scale of the wall. Photovoltaic panels attached to the screen wall shade panes of brilliant blue glass.

PHOTOGRAPHY: © TIM GRIFFITH, PHOTOGRAPHER

into the grid owned by Austin Energy, which supplied them.

To get light into a dark prefunction space buried deep inside the convention center, David Norris designed "skywedges." The narrow, wedge-shaped voids are behind translucent glass walls and covered by barrel-vault-shaped skylights. The voids are lined with specular metal panels that bounce the light onto the glass and distribute it evenly.

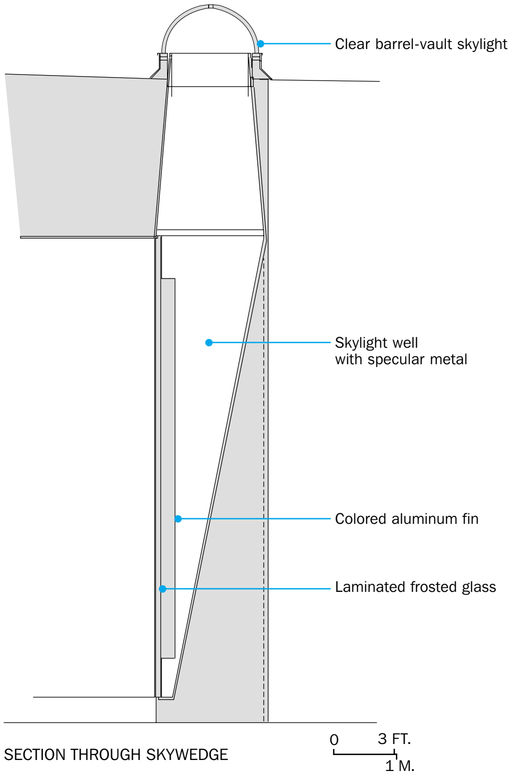
In summing up the goal of the project, Larry Speck says, "I think the whole idea was to make not just a facade but a magical landmark. Now people from all over identify this element of the building with Austin." ■

Project: *Austin Convention Center addition, Austin, Texas*
Architects: *Austin Collaborative Venture: PageSoutherlandPage; Cotera Kolar Negrete & Reed Architects; Limbacher & Godfrey Architects*
Curtain-wall consultant: *Arup N.Y.*
Daylighting consultant: *Carpenter/ Norris Consulting*
Glass and photovoltaics: *James Carpenter Design Associates*
Electric lighting designer: *Ann Kale & Associates*
Vision glass: *Viricon*
Blue glass: *Depp*
Curtain-wall contractor: *Win-Con Enterprises*
Lobby uplights: *Rambusch*
Skywedge baffles: *Environmental Interiors*
Skylights: *WASCO*
Specular panels: *Rigidized*
Skywedge glass: *Goldray*
Skywedge and interior balcony glass framing: *Five Star Fabrications*

Sources
Photovoltaic panels: *Terrasolar USA*
Curtain wall: *Kawneer*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

The blue-glass screen shading the west elevation is visible beyond the balcony (above). Skylights over wedge-shaped, specular panel–lined voids light translucent walls in prefunction spaces (below and right).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Skylight well with specular metal
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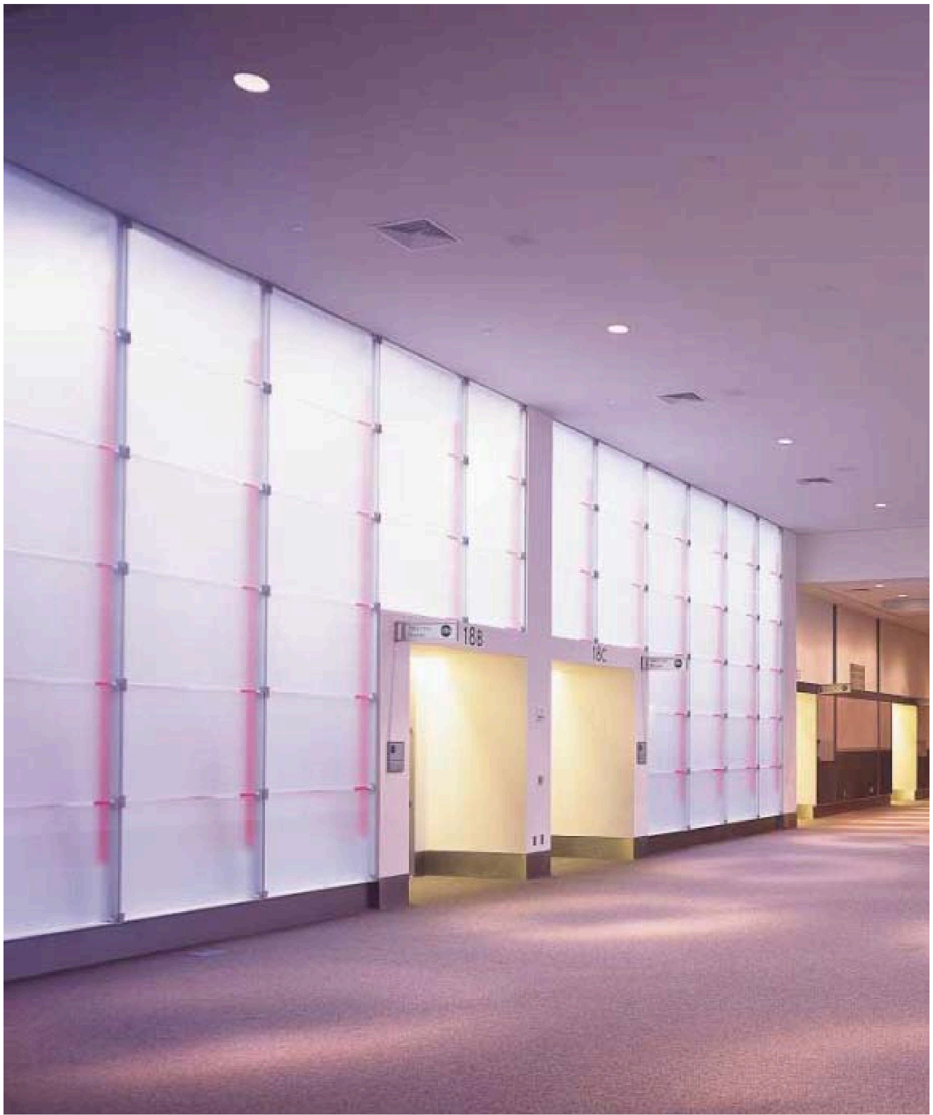

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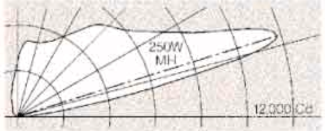

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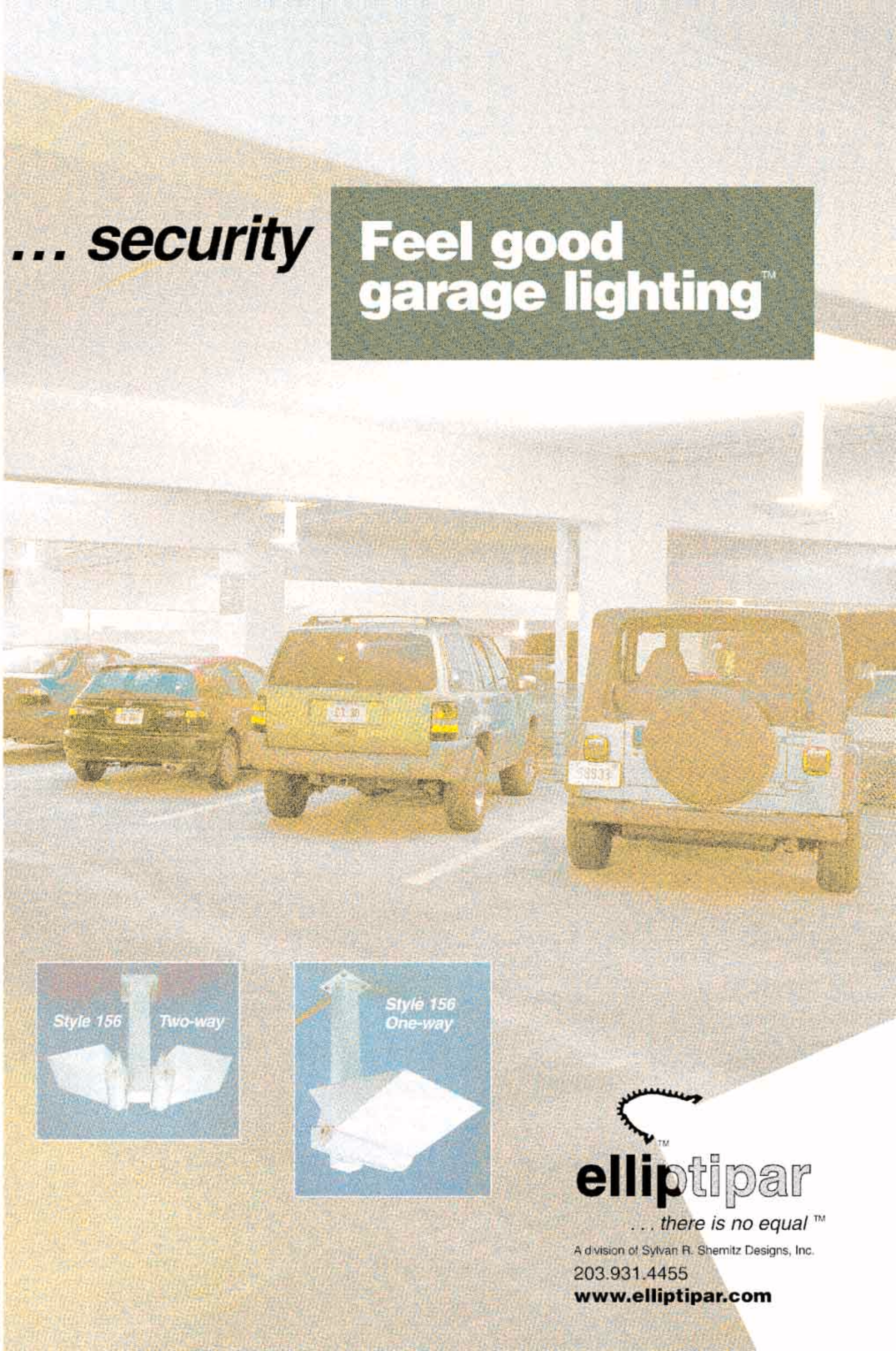

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Lighting Products

► Cutting it off at the top

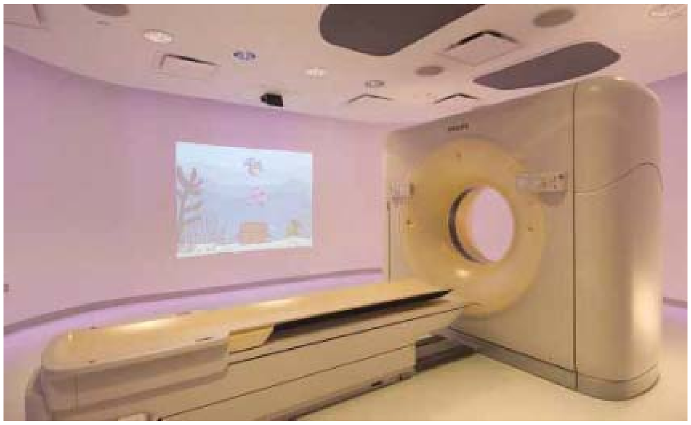
Louis Poulsen has added a cutoff post top to its Kipp family of luminaires. The Kipp line offers a range of outdoor lighting that includes bollards, post tops, and wall lights. The new offering is a solution for places where local ordinances prohibit the use of semicutoff or noncutoff luminaires. In daylight, there are no discernable visual differences between the cutoff and the original luminaire. When lit, however, the center cone of the cutoff luminaire is opaque, as opposed to the glowing cone of the semicutoff version. Louis Poulsen Lighting, Fort Lauderdale, Fla. www.louispoulsen.com **CIRCLE 200**

▲ Inspired by the dark ages

Though it does not function that way, the Insperato chandelier recalls medieval European fixtures that featured removable cups or beakers held in suspended iron supports that could be carried from one chamber to another. The Insperato fixture has a rustic iron finish and is offered in two chandelier options (with three or five frosted-glass shades) and a sconce version. Cristal, Fort Worth, Tex. www.cristal-usa.com **CIRCLE 201**

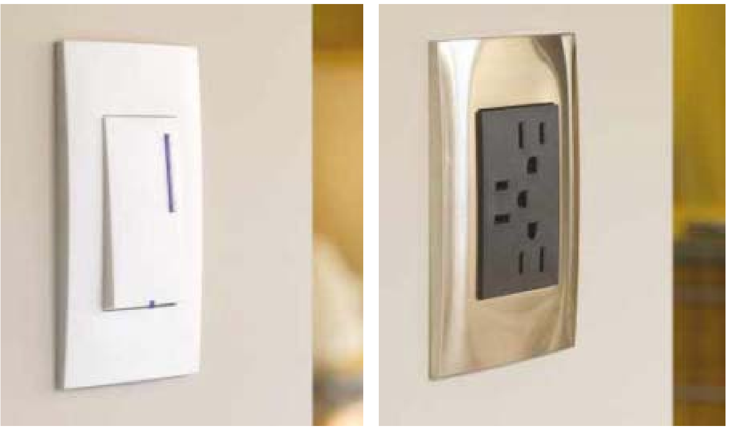
► Uniform light distribution

Offered as a replacement to parabolics, Lithonia's RT5 Volumetric Recessed Lighting uniformly illuminates the entire volume of space, eliminating harsh shadows, dark walls, and the "cave effect" arising from the sharp cutoff of parabolics. In addition, the new system uses up to 33 percent less energy than the industry standard for office lighting, an 18-cell, 3-lamp, T8 parabolic fixture. The fixtures are available in 2' x 4', 2' x 2', and 1' x 4' configurations. Lithonia Lighting, Conyers, Ga. www.lithonia.com/rt5 **CIRCLE 202**



▲ Less-stressful scans

Philips' first "ambient experience" radiology suite, located at Advocate Lutheran General Children's Hospital in Chicago, uses Philips lighting and electronics to create a more patient-friendly environment for people undergoing medical scans. The suite features a Philips scanner in a room with curved walls. By waving a radio frequency card over a reader, patients will be able to trigger special lighting and animations projected onto the walls and ceiling. Philips Lighting, Somerset, N.J. www.philips.com **CIRCLE 203**



▲ When paying attention to details pays off

Leviton has teamed with the renowned design firm IDEO to reinvent its line of electrical switches, lighting controls, and receptacles. The Acenti collection, the broadest new product launch in the company's history, is intended for high-end, custom home as well as light-commercial applications. The Acenti design platform is based on a clean surface, set into a new contoured wall plate. The Acenti dimmer uses an intuitive control scheme with a signature blue LED locator light (above left). With the new line, Leviton now offers the industry's first stainless-steel, screwless wall plate as well as the industry's first Triplex receptacle (above right). Leviton, Little Neck, N.Y. www.leviton.com/acenti **CIRCLE 204**

◄ Rocking lights

YLighting, which claims to be the largest online retailer of contemporary lighting in the U.S., is now distributing Stones of Glass "rock lights" manufactured in Italy by Oluce. The collection comes in both indoor and outdoor versions in three sizes. The outdoor group is constructed of polycarbonate, while the indoor version is made of glass and is available with a dimmer. Both versions require an outlet. YLighting, Marina Del Ray, Calif. www.ylighting.com **CIRCLE 205**

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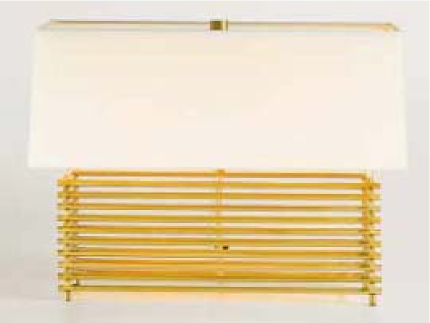
Lighting Products

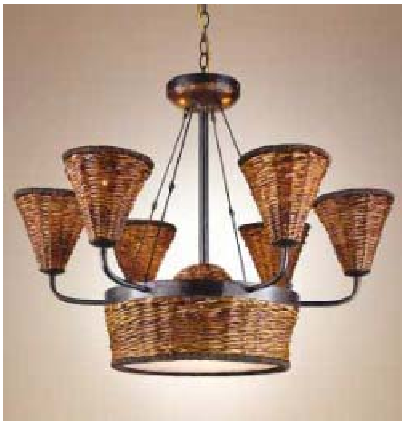
▲ Town illumination award

Last October, the Belgian town of Ghent won first prize in the 2004 International City-People-Light Award. The award rewards towns that best demonstrate the value that lighting can add to an area's cultural heritage and nocturnal identity while respecting the environment. Lighting designer Roland Jéol, in cooperation with architect Filip Vanhaverbeke, won the award for the illumination of the town's St. Michael quarter. Philips Lighting, Somerset, N.J. www.city-people-light.com **CIRCLE 207**



▲ Luxe lamp

Last fall, Baker and designer Thomas Pheasant unveiled several new pieces to the lighting series designed for the Thomas Pheasant Collection. Handcrafted in Italy, all lamps are UL-approved and accommodate standard-size bulbs. Part of the collection's Occasional Lighting Series, the Stack Desk Lamp features a rectangular base crafted of stacked, brushed-antique brass rods. The lamp is offered in antique gold or brushed silver and features an ivory brushed-cotton shade sized to slightly overlap its broad base and house two lights. Baker, Kohler, Wis. www.bakerfurniture.com **CIRCLE 209**



► Well-traveled collection

Wildwood Lamps & Accents has partnered with the National Geographic Society to develop the National Geographic Home collection, a line of lighting, mirrors, and floor screens inspired by the world travels of National Geographic's own explorers. The collection contains work from eight different manufacturers, including Wildwood Lamps, which has created a line of 150 handcrafted lamps and chandeliers. The Woven Basket hanging lamp (above) is made of woven banana grass and was inspired by the baskets used throughout Southeast Asia. Wildwood Lamps, Rocky Mount, N.C. www.wildwoodlamps.com **CIRCLE 211**

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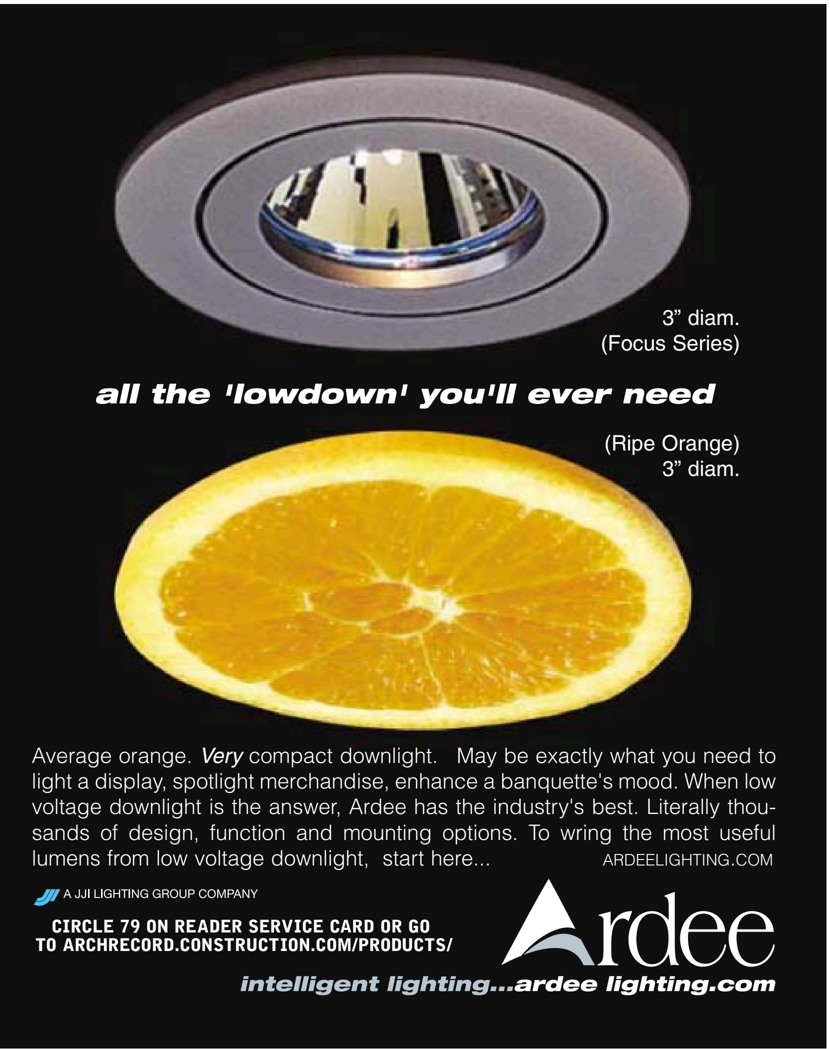
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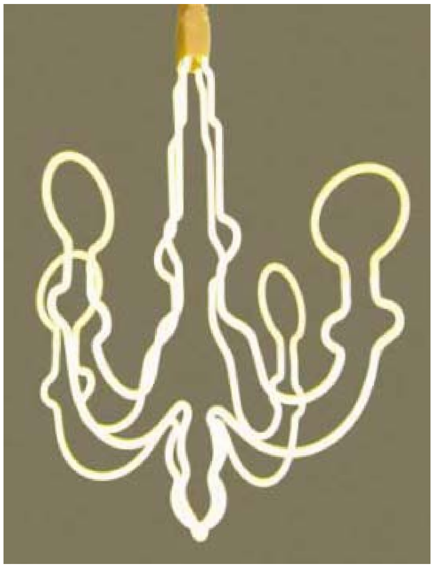
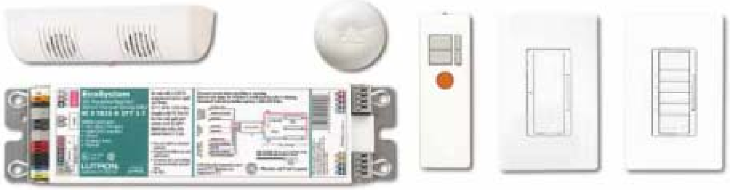


◄ Bright lights

Founded in 1999, Lite Brite Neon has created custom neon works for clients including Bergdorf Goodman, the Whitney Museum, and Matador Records. Comprised of glowing, 3D chandeliers (left) and wall sconces, Lite Brite's newest collection is available in an array of triphosphor neon whites with either warm or cool tones. The line is offered in several standard sizes, while custom capabilities are available. The Future Perfect, Brooklyn, N.Y. www.thefutureperfect.com **CIRCLE 206**

▼ Conscious lighting control

Lutron Electronics had introduced the EcoSystem family, a fluorescent lighting control system that features ballasts that "listen," "think," and "remember." The EcoSystem solution is built on the EcoSystem ballast, which connects directly to photocells, infrared (IR) receivers, occupant sensors, and wall stations, without interfaces, power packs, or controllers. The ballast interprets data collected by the sensors and wall stations, adjusts light levels accordingly, and then transmits the information to other ballasts. Lutron Electronics, Coopersburg, Pa. www.lutron.com **CIRCLE 208**



► Intelligent white light

Color Kinetics' IntelliWhite systems extend the inherent benefits of LEDs, including efficiency, long life, durability, and lack of radiated heat, to white light applications, while applying the company's control and dimming technologies. Applications include retail displays, where visual merchandisers can highlight or enhance specific attributes by varying the output of certain IntelliWhite fixtures between cool and warm shades of light. The system includes iW MR (top right), a compact lamp and iW Cast (right), a linear low-profile wall-washer. Color Kinetics, Boston. ww.colorkinetics.com **CIRCLE 210**

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Products

Preservation

This month's roundup focuses on the latest **preservation products**, including offerings for renovation, restoration, and adaptive-reuse projects. From the rafters to the floorboards, these products remain **sensitive to the original design** and limitations of the existing building. *Rita F. Catinella*

Utah State Capitol expands, then renovates

The Utah State Capitol Expansion Project consists of two new structures built as annexes to the north of the original capitol building by architect Richard Kletting, completed in 1916. The primary goal for the facade of the new structures was to complement, but not overwhelm, the grandeur of the existing capitol building. The project incorporates 85,000 square feet of Classically detailed Italian Griz Alcazars granite, which was determined to be the closest match to the Little Cottonwood granite used for the original building. The Little Cottonwood quarry, located in the mountains above Salt Lake City, has since been closed.

The Utah State Capitol Expansion Project was awarded the 2004 Marble Institute of America's Pinnacle Award of Merit for Commercial Exteriors and the Utah Masonry Council and AIA Utah Chapter's 2004 Excellence in Masonry Design Award for Exceptional Detail. The Salt Lake City–based team responsible for the exterior stone masonry on the capitol expansion buildings includes architects from GSBS, FFKR, and CRS, and cladding contractor Kepco+.

The expansion was completed in July 2004, allowing Utah state officials and employees to relocate to the two new buildings while the existing capitol undergoes a four-year renovation and seismic upgrade. Kepco+, Salt Lake City. www.kepcoplus.com **CIRCLE 212**

Since the original granite used for the capitol is no longer available, the expansion is clad in matching granite quarried from an island off the coast of Italy.

All-volunteer restoration effort brings back Minneapolis band shell

The curtain wall serves as a transparent backdrop for the band shell.

Specialty-glazing contractor Harmon recently completed a glass curtain-wall renovation for the Minneapolis Lake Harriet Bandshell. Donating its time and materials to repair the 20-year-old facility and its 30' x 25' window wall, Harmon collaborated with glass fabricator Viracon, Minneapolis engineering firm Braun Intertec, and other partners. In early June 2004, Harmon's renovation team led a forensic investigation of the band shell's existing hollow metal wall system. The team met with Braun's engineers to confirm the wall system was structurally sound and required remediation on about half of the horizontal members. The window-unit frame's dramatically deteriorated finish and the total glass replacement posed a greater challenge, requiring full sandblasting and refinishing with PPG's high-performance Coraflon fluoropolymer coating. The Harmon team then upgraded the existing glass from ¼" laminated to ½" clear-tempered units to better deal with the breakage issues caused by vandalism. Harmon, Golden Valley, Minn. www.harmoninc.com **CIRCLE 213**

Award-winning lakeside cottage renovation

Engerman Contracting and Jason Bernard, AIA, both of Lake Geneva, Wisconsin, took Best of Show honors in the Vetter Inspired Project Awards for their renovation of a 4,000-square-foot, 3-bedroom lakeside cottage in Lake Geneva. Situated on a 1-acre lot with 40 feet of lakefront, the residence was transformed in part by custom-shaped Vetter windows with custom grille patterns that bring light and panoramic views into the home. The cottage's front porch, window trim, and flower boxes, finished in white, contrast with the green shingle siding. Other highlights include a custom interior staircase, maple flooring throughout the main level, and marble tile in the master bathroom. Vetter Windows and Doors, Mosinee, Wis. www.vetterwindows.com **CIRCLE 214**

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Products Preservation

▲ Warm Kentucky welcome

Designated a National Historic Landmark in 2000, Labrot & Graham is the oldest operating bourbon distillery in the U.S. The distillery's visitor center recently completed a renovation to restore the glory of the original terne metal roof. The structure features siding and gable roofs finished in Follansbee's KlassicKolors standing-seam roof in Slate Gray. The installation was completed in a one-month period before the start of the tourist season. Follansbee Steel, Follansbee, West Virginia. www.follansbeeroofing.com **CIRCLE 215**

► Improved performance

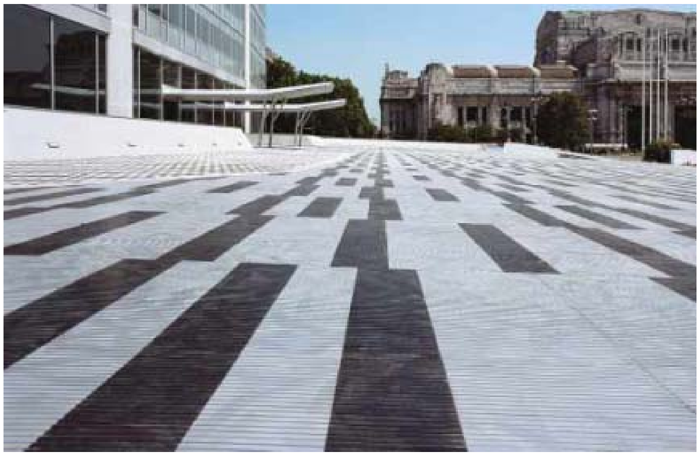
The Los Angeles firm Gruen Associates specified approximately 7,200 square feet of ¾" Extira wood-composite panel for the Hollywood Bowl/Los Angeles Philharmonic renovation [RECORD, January 2005, page 152] to replace the MDF originally used on the stage floor. Extira is an exterior-grade treated-wood composite that provides moisture-, rot-, and termite-resistance not available in other materials such as MDF, plywood, and wood, according to the manufacturer. Extira is available in ½", ⅝", ¾", 1", and 1¼" thicknesses. CMI, Chicago. www.extira.com **CIRCLE 217**

▲ College recladding project

For the Jefferson College Technology Center's 13,000-square-foot exterior building renovation in Hillsboro, Missouri, Centria was able to quickly install Formawall Dimension Series Factory Foamed Metal panels and Formavue 200 Integrated windows to replace the existing cementitious wall panels that were failing. Centria's window systems are designed to integrate with their panel joinery, resulting in a high-performing window/panel interface and allowing for a faster installation. Centria, Moon Township, Pa. www.centria.com **CIRCLE 219**

▼ Taking a cue from the original

In April 2002, a light aircraft crashed into Milan's largest skyscraper, the Pirelli building, killing three people and damaging several floors. Following the accident, a restoration of the entire building began, including the entrance landing square shown here. The outdoor square features Artigo ribbed rubber flooring with the same geometrical black and gray design originally installed by architect Gio Ponti in the 1950s. PRF USA, Carlstadt, N.J. www.artigo.com **CIRCLE 216**



► High-tech storage for a historic site

Recognized as one of the 10 most technologically advanced TV stations in the world, CIVI-TV now operates out of a renovated, 95-year-old heritage site on Vancouver Island in British Columbia, Canada. Since the historic building could neither be altered nor expanded, Spacesaver worked with the architect to design compact storage systems that fit with the historic building's specifications. The high-density, mechanical-assist mobile system now stores both active and archived videotapes, reducing the station's storage space requirements and freeing up space for equipment and people. Spacesaver, Fort Atkinson, Wis. www.spacesaver.com **CIRCLE 218**

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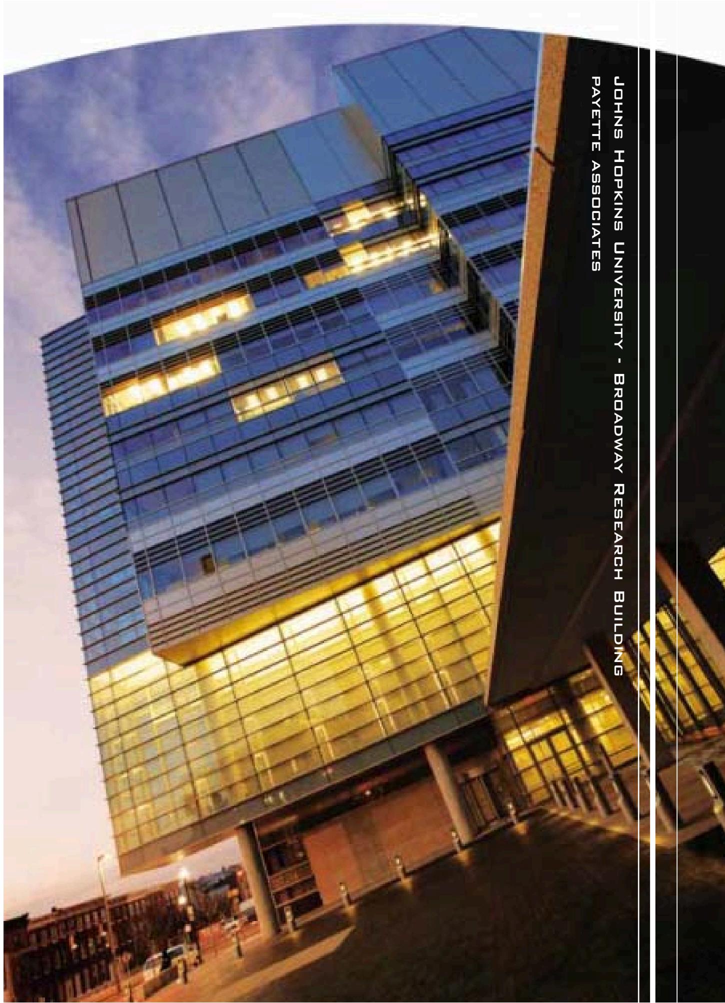

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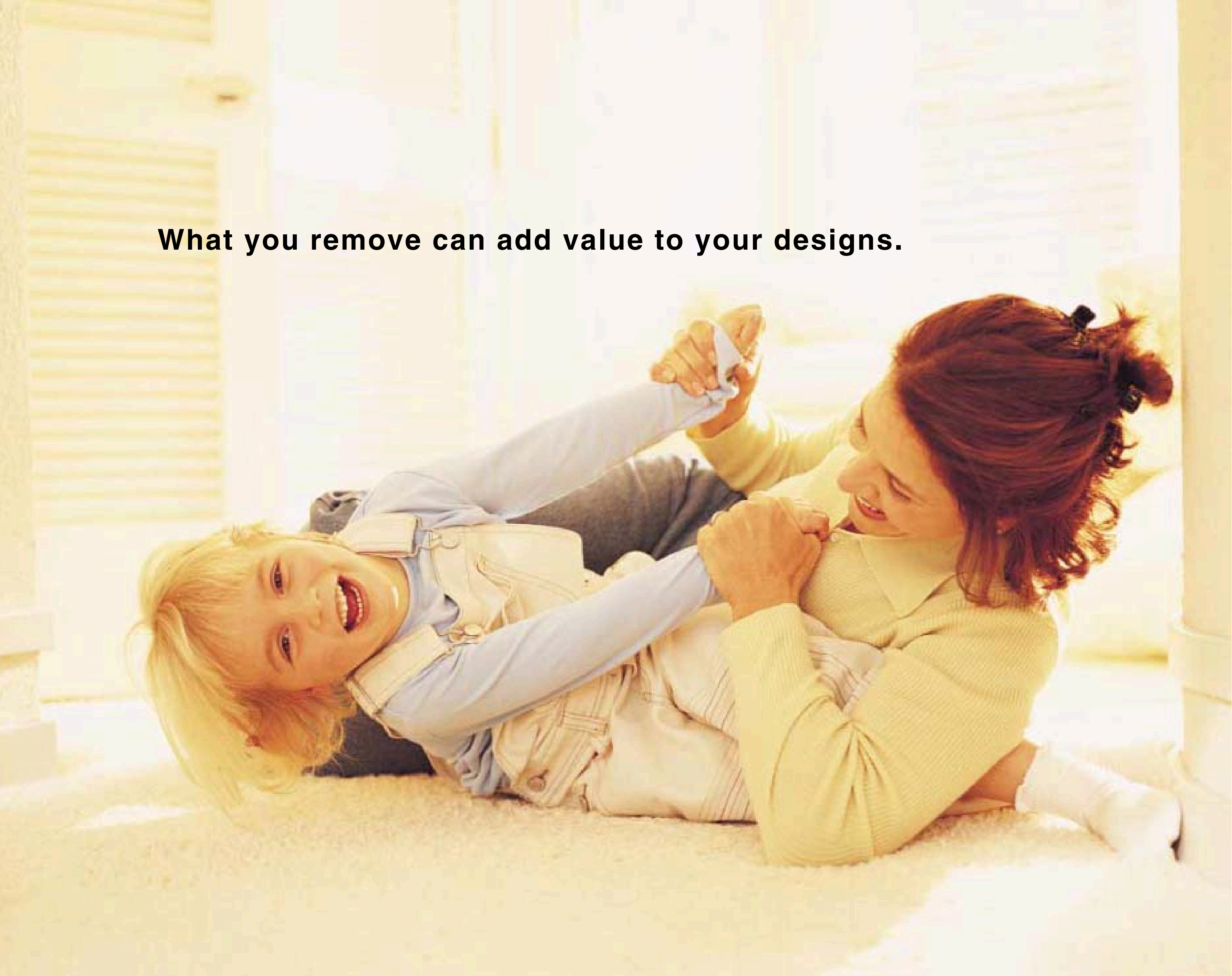
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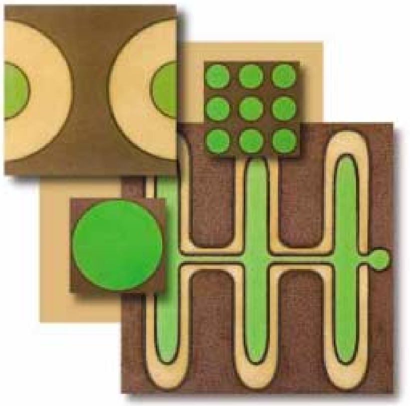
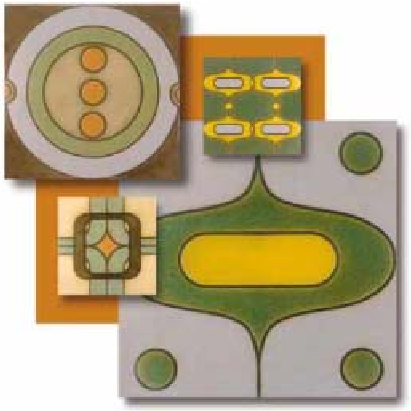
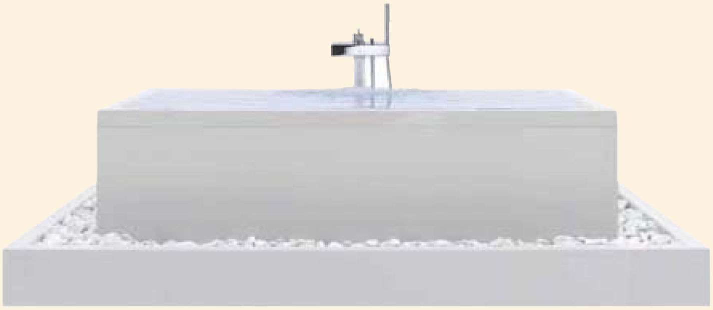
Product Briefs

► Hip to be square

Platform3's collections of ceramic tile, evoking the design vibe of the 1950s, '60s, and '70s, is a creation of Kim Holt and JB Fung, whose experience as designers for the recording and entertainment industry have given them an appreciation for the role color and pattern play in vanguard environments. The varied tile collections can be applied as a splash across a wall or as decor accents for pools, countertops, entryways, and exterior features. The six collections include the whimsical Suede Green Collection (top) and the Organic Collection (bottom), which draws inspiration from the work of Modernists such as Frank Lloyd Wright and Charles Eames. Platform3, Culver City, Calif. www.eplatform3.com **CIRCLE 221**





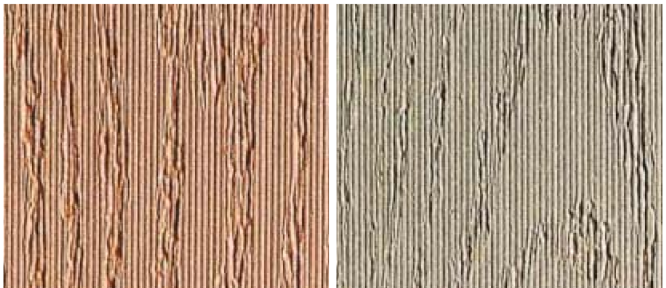


Product of the Month Starck X

Philippe Starck's design for the new Duravit Design Center in Hornberg, Germany, features a three-story-high toilet that functions as an observation platform: a perfect illustration of the French designer's humor and Duravit's faith in his ability to generate interest in their joint products since their first collaboration in 1994. Starck X, the latest offering, has pushed Duravit's manufacturing capabilities to a new level. Launched this month at the ISH show in Frankfurt, the high-end line includes deep cylindrical basins in floor- or wall-mounted versions; directional waterfall spout faucets; square-shaped toilets in floor- and wall-mounted versions; and a shallow, square-shaped basin available with a side platform (below). Supported by a metal console or furniture elements, the square sink unit and table are available in white, yellow, or platinum-colored glaze. The gutter for the line's freestanding spillover tub (above), can be easily accessed by removing a layer of river rocks or robinia wood planks (a sustainable alternative to teak), eliminating the maintenance issues of other spillover models. Duravit, Duluth, Ga. www.duravit.com **CIRCLE 222**

▼ Professional cleaning and drying

In addition to a stainless-steel interior finish on all surfaces and interior drums, the new KitchenAid Pro Line Series Washer and Dryer duo features the first glass-encased, touch-sensor user-interface controls in the market. Both appliances have internal and external glass windows and Pro Line handles, which complement the KitchenAid series of Pro Line major and small appliances. The washer offers 10 wash programs, and the dryer includes a stainless-steel drying rack. The pair will feature an optional pedestal drawer with an integrated pullout shelf and will be available during the second quarter of 2005. KitchenAid, Benton Harbor, Mich. www.KitchenAid.com **CIRCLE 223**



▲ Colorful decking and siding

Oasis, shown in Spanish Cedar and Weathered Grey above, is the latest generation of decking from Alcoa. Distributed throughout North America by Weyerhaeuser, the Oasis system offers both composite and PVC deck planks and railing components. Crafted of HDPE (high-density polyethylene) and fine wood fiber, Oasis composite looks and handles like wood. Dreamcolor (right), also new from Alcoa, is a line of exterior products available in a palette of 700 colors. If a homeowner's existing siding isn't in the baseline palette, Alcoa can create a custom color match. Weyerhaeuser, Federal Way, Wash. www.weyerhaeuser.com/wbm **CIRCLE 224** Alcoa, Pittsburgh. www.alcoahomes.com **CIRCLE 225**

For more information, circle item numbers on Reader Service Card or go to www.archrecord.com, under Products, then Reader Service.

▼ Oxygen-producing tiles

American Standard, along with its European counterpart Ideal Standard, is working with the Ceramiche Gambarelli Group for the distribution of an antismog tile that will be branded as Oxygena Ideal Standard. The Oxygena tiles contain titanium dioxide, an element that uses a photocatalytic process to produce active oxygen, which then oxidizes pollutants from vehicle exhaust pipes, boilers, stoves, and chimneys. Created originally for outdoor use on buildings, balconies, and walkways, the tiles can also be laid internally in residential baths and kitchens, as well as in schools and hospitals. Unfortunately, the tiles are currently available only in Italy. Ideal Standard Italia, Modena, Italy. http://www.gambarelli.it/it/oxygena/oxygena_01.html **CIRCLE 226**

◄ Attention-grabbing display

The Puzzler (left), a new component for the ALU Acrobat display system, features a lightweight curved shelf suspended in a puzzle format that works at any elevation. Made of painted aluminum, the Puzzler can be used alone or in a group of shelves. ALU's Acrobat Curved system (below) features modular curved cabinets, an adjustable ceiling mount, and a vertical rod with spacers that allow for varying heights. The system features anodized aluminum rails and extrusions in satin stainless steel. The metal, glass, or laminate shelves are available in a range of colors. When the system is used along with ALU's Frame collection and an assortment of panel inserts, it transforms into a room partition. ALU, New York City. www.alu.com **CIRCLE 227**

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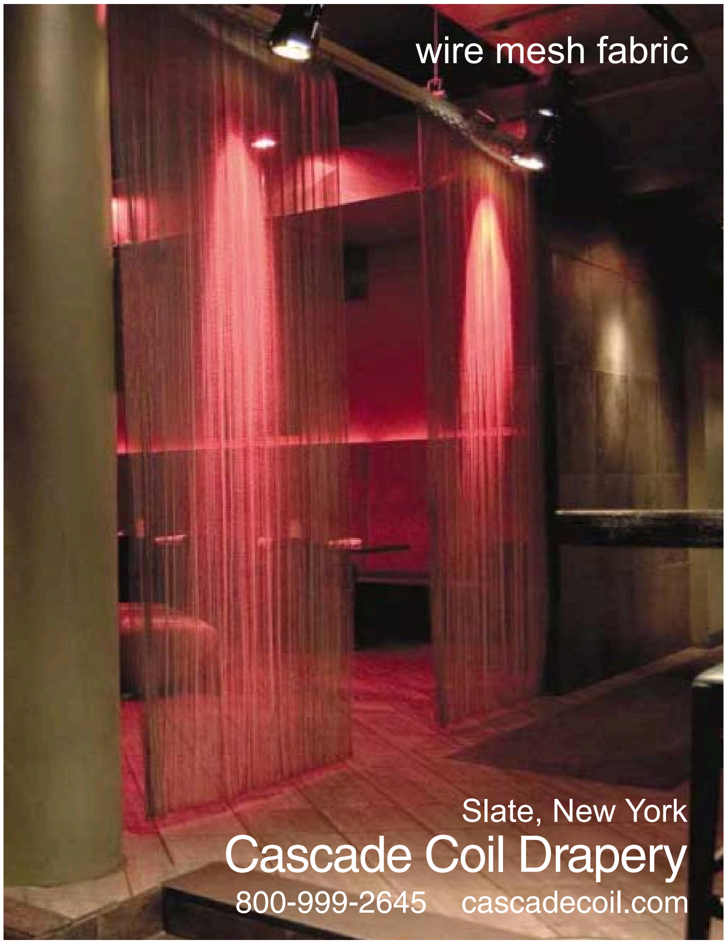

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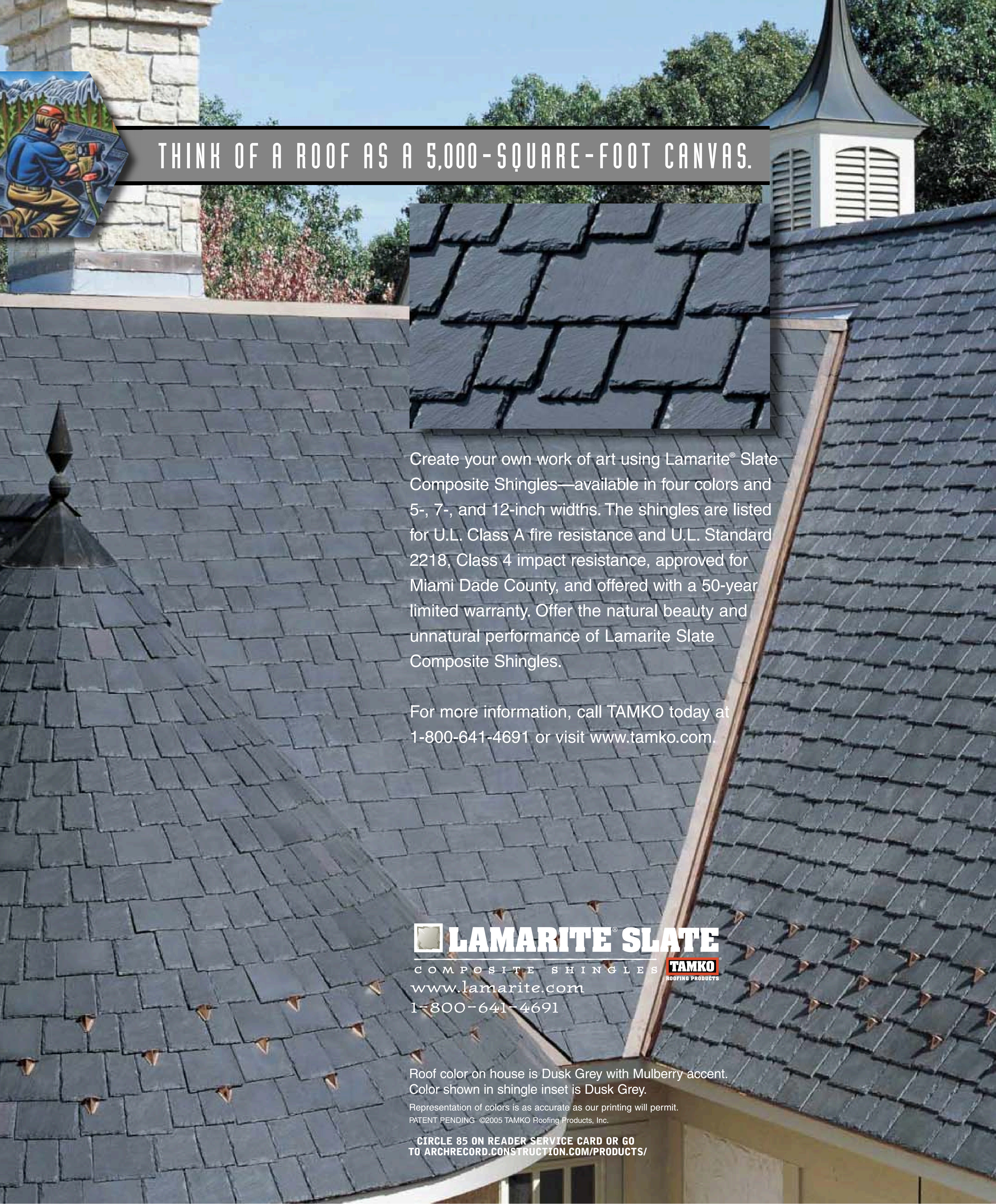
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▲ Equipment for mastering Asian cuisine

Gaggenau introduced two new products for the home chef of Asian cuisine at the Home Builder's Show in January: the Vario Teppan Yaki grill (above) and the Vario 400 Induction Wok. The Teppan Yaki stainless-steel modular grill features a large, hard-chromed, smooth stainless-steel surface and yields 1,500 watts of power in two separate and temperature-controlled cooking zones. Distinct settings include large control knobs marked by a striking orange signal ring. The Induction Wok features an 8" or 16" glass ceramic surface that always stays cool, and a large induction zone area that utilizes electronic control with an output level of 12,000 watts. Gaggenau, Huntington Beach, Calif. www.gaggenau-usa.com **CIRCLE 228**

► Structural-glass flooring

The GlassWalk structural-glass flooring system—for applications including floors, landings, walkways, and stairs—utilizes laminated-glass lites from 12" x 12" up to 24" x 58" in size. Based on IBP's 6" paver FloorSystem, the pre-engineered structural system installs on-site and is available in over 30 different ceramic-frit patterns that ensure a nonslip surface. Custom radius corners, curves, or special size or shape laminated glass can be created. Acme Brick Company, Fort Worth, Tex. www.ibpglassblock.com **CIRCLE 229**

▲ Glass rain screen

For the new Shaw Center for the Arts in Baton Rouge, Louisiana, Schwartz/Silver Architects had nearly 40,000 square feet of single-glazed Linit U-Profile glass installed with the flanges facing out. The glass walls function as a rain screen for the facade of the multidimensional building, which contains two theaters, an art studio, museum, and a gallery space. The U-Profile system eliminates the need for most vertical and horizontal framing members. Bendheim Wall Systems, New York City. www.bendheimwall.com **CIRCLE 230**

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Product Briefs

► More focused faucet

The new Tripoint technology from Kohler reduces false activation to a minimum because its sensors rely on distance as a primary trigger. Tripoint determines the true distance between the sensor and the object with a precise consistency similar to that of an auto-focus camera. In addition, the faucet features a high-temperature limit stop for safety and a temperature-adjustment lever on the side of the faucet. Kohler, Kohler, Wis. www.kohler.com **CIRCLE 231**

► Soffit? What soffit?

CertainTeed has expanded its selection of Vinyl Carpentry soffit and decorative trim products with the introduction of InvisiVent Triple 3⅓" ventilated vinyl soffit. The soffit's design conceals its vents in deep, sharply etched dovetails for a smooth, nonperforated surface. Available in 12 colors, InvisiVent features a low-gloss matte finish, .044" thickness, and ¾" panel projection. It installs like a standard vinyl soffit. CertainTeed, Valley Forge, Penn. www.certainteed.com

CIRCLE 232

◄ Return to teak

The Pure Sofa collection is an outdoor modular lounge system from Henry Hall comprising a sofa, a club chair, and a slatted-top coffee table that can double as an ottoman. After introducing several outdoor collections featuring other materials, including synthetic resin, Henry Hall has returned to teak, and the frame is made solely from this plantation-grown wood. Henry Hall Designs, San Francisco. www.henryhalldesigns.com **CIRCLE 233**

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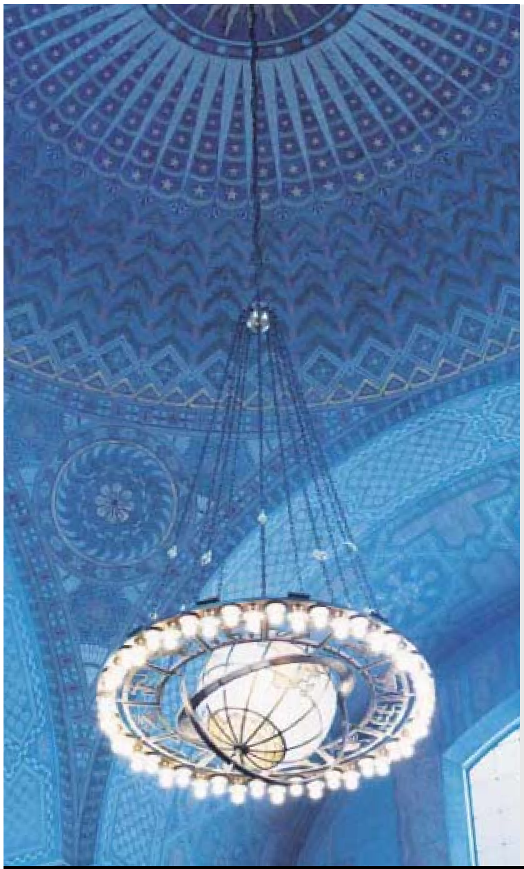

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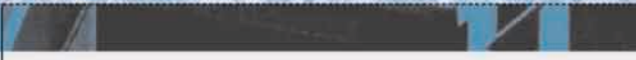

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- ☐ (16) Commercial
- ☐ (17) Educational
- ☐ (18) Healthcare
- ☐ (19) Industrial
- ☐ (20) Multi-Family Residential
- ☐ (21) Single-Family Residential
- ☐ (22) Other ____________

4. Reason for Inquiry?
- ☐ (23) Current Planning
- ☐ (24) Future Planning
- ☐ (25) Both

5. Are you currently a subscriber?
☐ (26) Yes ☐ (27) No

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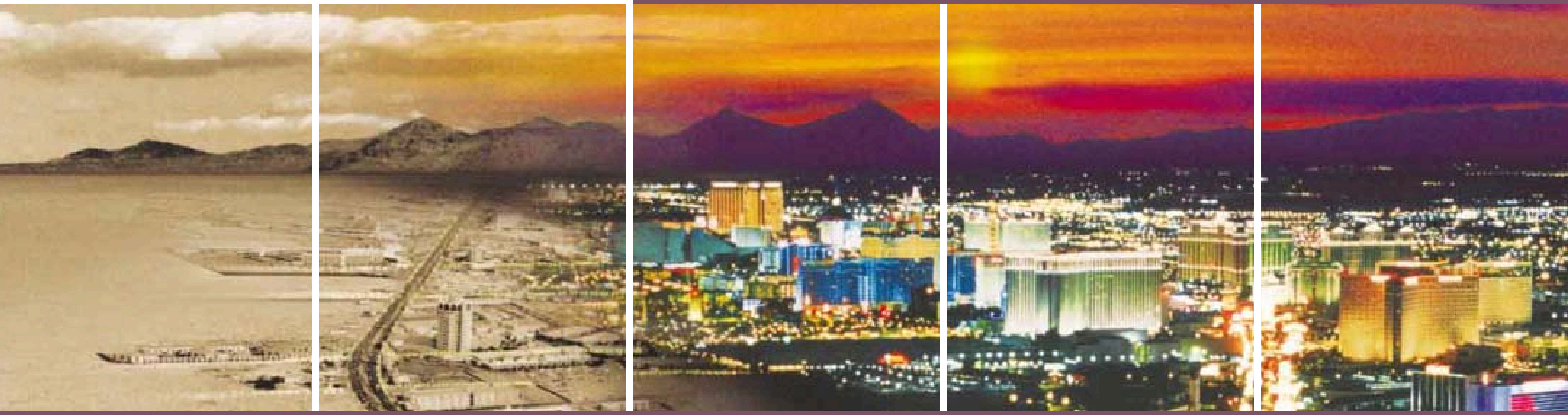
March 2005 Issue

ARCHITECTURAL RECORD

THE AMERICAN INSTITUTE OF ARCHITECTS



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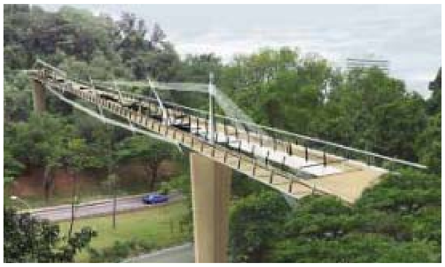
▲ Shiny leather

Meaning "shiny" in Italian, Lucente is a full-grain leather from Spinneybeck with a casein finish. Casein, a milk by-product often used in consumer products, contributes to the sheen on the leather but is transparent enough to allow the natural markings of the hides to remain visible. The leather is tanned and dyed, and then the surface is ironed after the finish is applied, creating a rich depth of color and a luxurious sheen. Available in 17 colorways, Lucente can be used in contract and residential settings as well as automotive interiors. Spinneybeck, Getzville, N.Y. www.spinneybeck.com **CIRCLE 234**

► Long-span solution



An alternative to suspension and cable state structures, the Erdevicki structural system is intended primarily for long-span crossings. The system consists of a main single-span girder element, top and bottom tension chords, diagonal compression struts, and vertical tension elements connecting the diagonals to the girder. The pedestrian bridge design above was submitted by Erdevicki for last year's Southern Ridges Bridge Design Competition. No structures have been built using the system to date. 604/293-1411. Erdevicki Structural Engineering, Burnaby, B.C., Canada. **CIRCLE 235**

SouthTrust

◄ Greener glazing

Viracon has introduced the newest addition to its VRE (Viracon Radiant Low-E) architectural-glass family. Solarscreen VRE-67 Insulating Glass combines a crisp, neutral exterior appearance and VRE's highest light transmission at 67 percent. The Light to Solar Gain Ratio (LSG) for VRE-67 ranges from 1.25 to 1.92; an LSG of 1.25 or higher is required for Green Glazing designation. Viracon, Owatonna, Minn. www.viracon.com **CIRCLE 236**

For more information, circle item numbers on Reader Service Card or go to www.archrecord.com, under Products, then Reader Service.

CALL FOR ENTRIES

ARCHITECTURAL RECORD
Kitchen & Bath Portfolio

Kitchen & Bath Portfolio
A practical kitchen and bath for the quintessential New York City loft
An airy southwest kitchen blends nature and machinery

The editors of ARCHITECTURAL RECORD are calling for entries for the 2005 KITCHEN & BATH PORTFOLIO. Entry is open to any registered architect who has recently completed an innovative kitchen and/or bath project. Of interest are projects that feature interesting or unexpected materials, address unique client needs, or are designed in a manner that allows these utilitarian spaces to be both functional and beautiful. There is no fee. Submissions should include images (color prints, large-format transparencies, or high-res digital images along with a color printout), and a brief project description. No slides, please. We must receive all materials by Tuesday, April 5th. Selected entries will be featured in RECORD's July 2005 issue.

Submissions should be mailed to:

Rita F. Catinella • ARCHITECTURAL RECORD • Two Penn Plaza • Ninth Floor • New York, NY 10121

If you have any questions, please E-mail Rita Catinella at rita_catinella@mcgraw-hill.com

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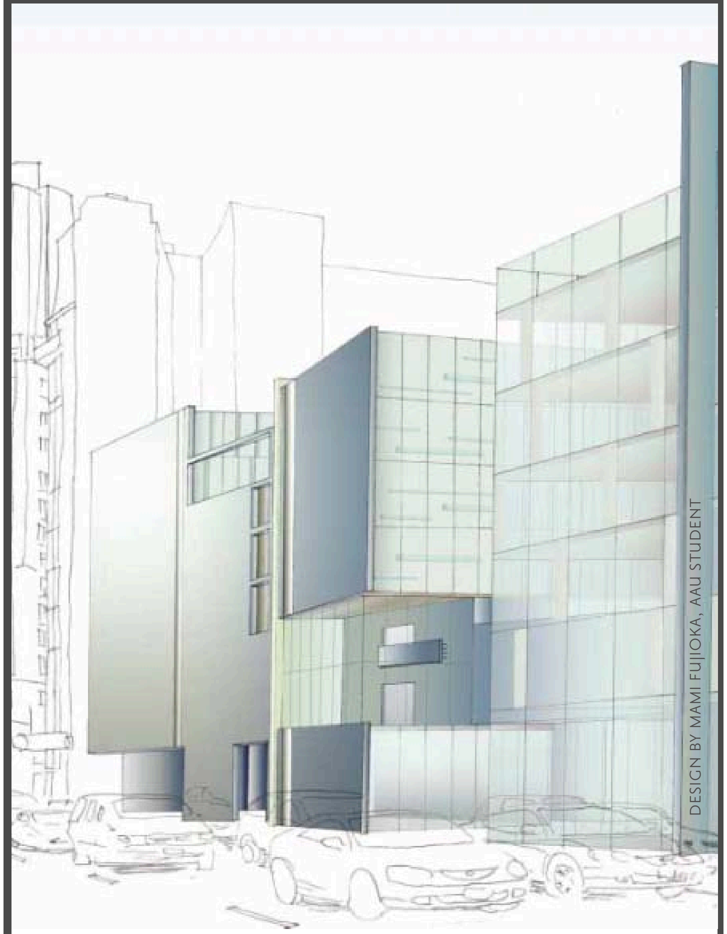
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Product Literature

Specialty ceiling brochure

A newly updated brochure, illustrated with color photos and several case studies of prominent ceiling projects completed by USG Interiors' Specialty Solutions Group, is now available. The brochure also provides complete details on the group's customized ceiling design and manufacturing capabilities. USG, Chicago. www.usg.com **CIRCLE 237**

Signware literature

Walls+Forms' new literature focuses on the diversified range of products it offers, including signware, point of purchase displays, store fixtures, and components. Walls+Forms, Dallas. www.wallsforms.com **CIRCLE 238**

Garden furniture catalog

McKinnon and Harris unveils a new catalog for spring 2005 that includes three signature garden furniture collections: the Beaufort, the duVal, and the McNeill. The photography throughout the catalog highlights many extraordinary sites across the state of Virginia, including those of historical merit and architectural distinction. McKinnon and Harris, Richmond, Va. www.mckinnonharris.com **CIRCLE 239**

NEW SITES FOR CYBERSURFING

New site for bath accessories and safety items. **www.csi.moen.com**

Browse through metal architectural mesh categories and interactive 3D models. **www.architecturalmesh.com**

Signage site is translated into four languages. **www.vistasystems.com**

Online drawings and specs for stainless-steel cable and rod tensioning systems. **www.ronstan.com/arch.links.asp**

Flushometer brochure

A new four-page color brochure from Sloan Valve describes the Crown II Piston Flushometer. The literature highlights the new Crown II design, which consists of a new handle assembly and an outside cover with accent rings offered with special finishes. Other features of the Crown II include a Bak Chek control stop with a vandal-resistant spin cap, and an ADA-compliant triple-seal handle. Sloan Valve, Franklin Park, Ill. www.sloanvalve.com **CIRCLE 240**

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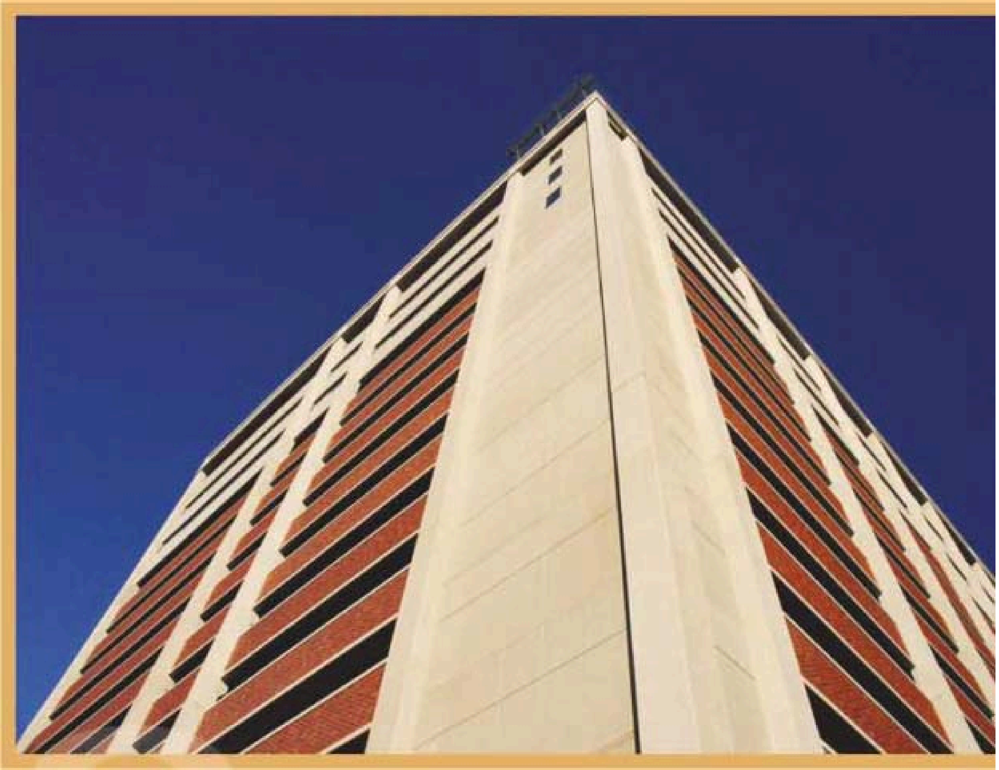

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Product Literature

Carpet tile info sheet

Eurotex has published new literature detailing its Tretford carpet tile line and including construction and performance specifications and test data. Tretford is a fusion-bonded tile with a polyvinyl/silicon-composite back that prevents distortion and assumes dimensional stability. Eurotex, Philadelphia. www.eurotexinc.com **CIRCLE 241**

Lighting white papers

Litecontrol has published a series of educational white papers known as *Illuminations*. The first paper in the series, entitled *Illuminations for the 21st Century*, describes the growth and "coming of age" of suspended indirect and indirect/direct lighting systems. The paper compares various suspended systems and contrasts suspended systems' performance with recessed direct lighting. Litecontrol, Hanson, Mass. www.litecontrol.com **CIRCLE 242**

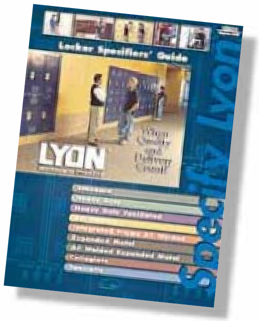
Pervious concrete manual

There has been a renewed interest in pervious concrete as a paving material due to its ability to allow water to flow through it to recharge groundwater and minimize stormwater runoff. The Portland Cement Association in cooperation with the National Ready Mixed Concrete Association has introduced *Pervious Concrete Pavements*, a reference manual on this sustainable construction technique. The guidebook introduces readers to pervious-concrete applications and engineering properties, including environmental benefits, structural properties, and durability. Both hydraulic and structural designs of pervious concrete pavements are discussed, as well as construction techniques. Portland Cement Association, Skokie, Ill. www.cement.org/bookstore **CIRCLE 243**

Locker specifier's guide

The new *Locker Specifier's Guide* from Lyon Workspace Products illustrates what's new in locker styling for education, business, industry, and institutional projects. Lyon's new antimicrobial finish fights bacterial and mold growth on locker surfaces. A selection of Lyon locker benches, as well as engineering details on recessing and anchoring of lockers, is also included in the guide. Lyon Workspace Products, Aurora, Ill. www.lyonworkspace.com **CIRCLE 244**

Pervious
Concrete
Pavements



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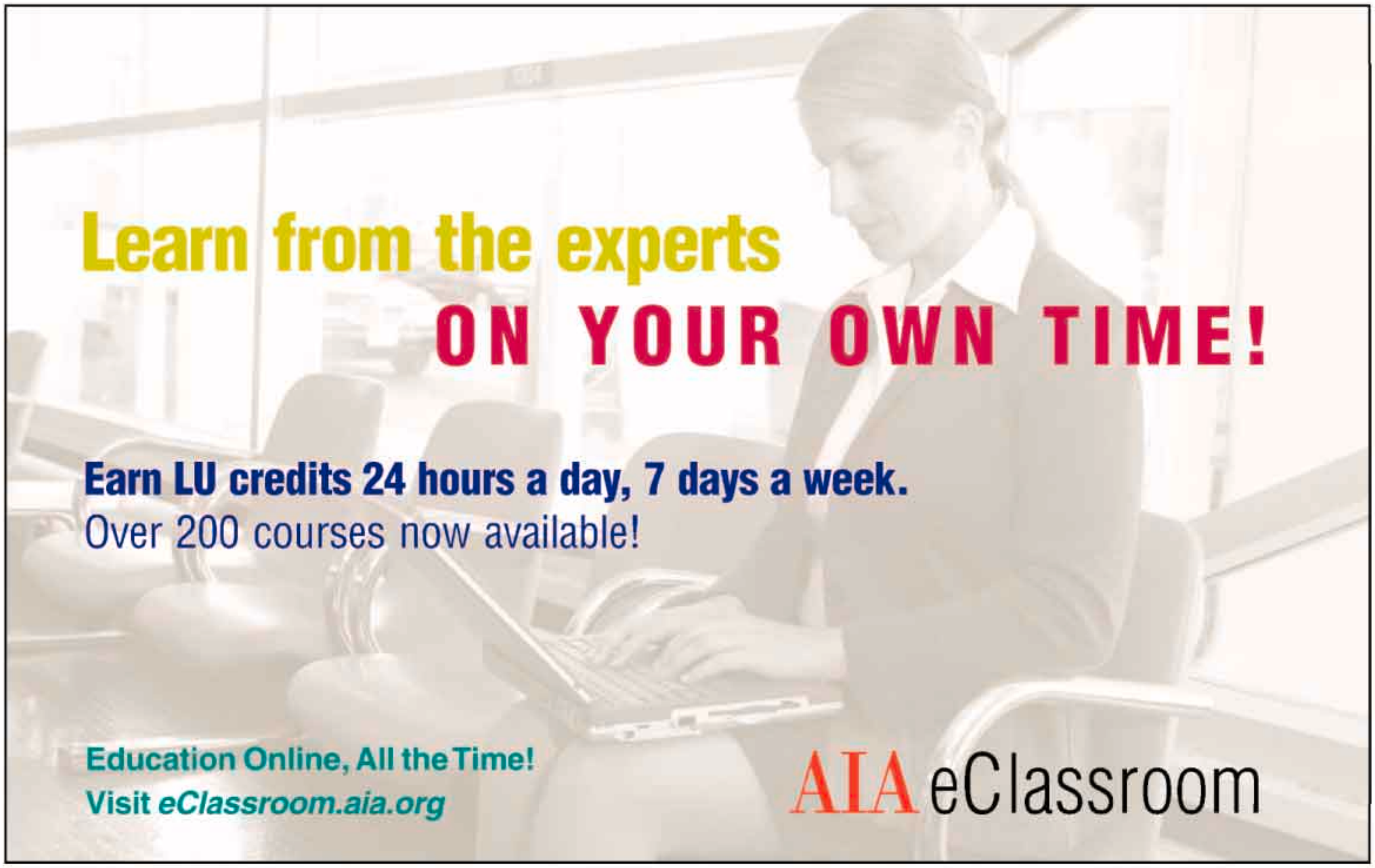
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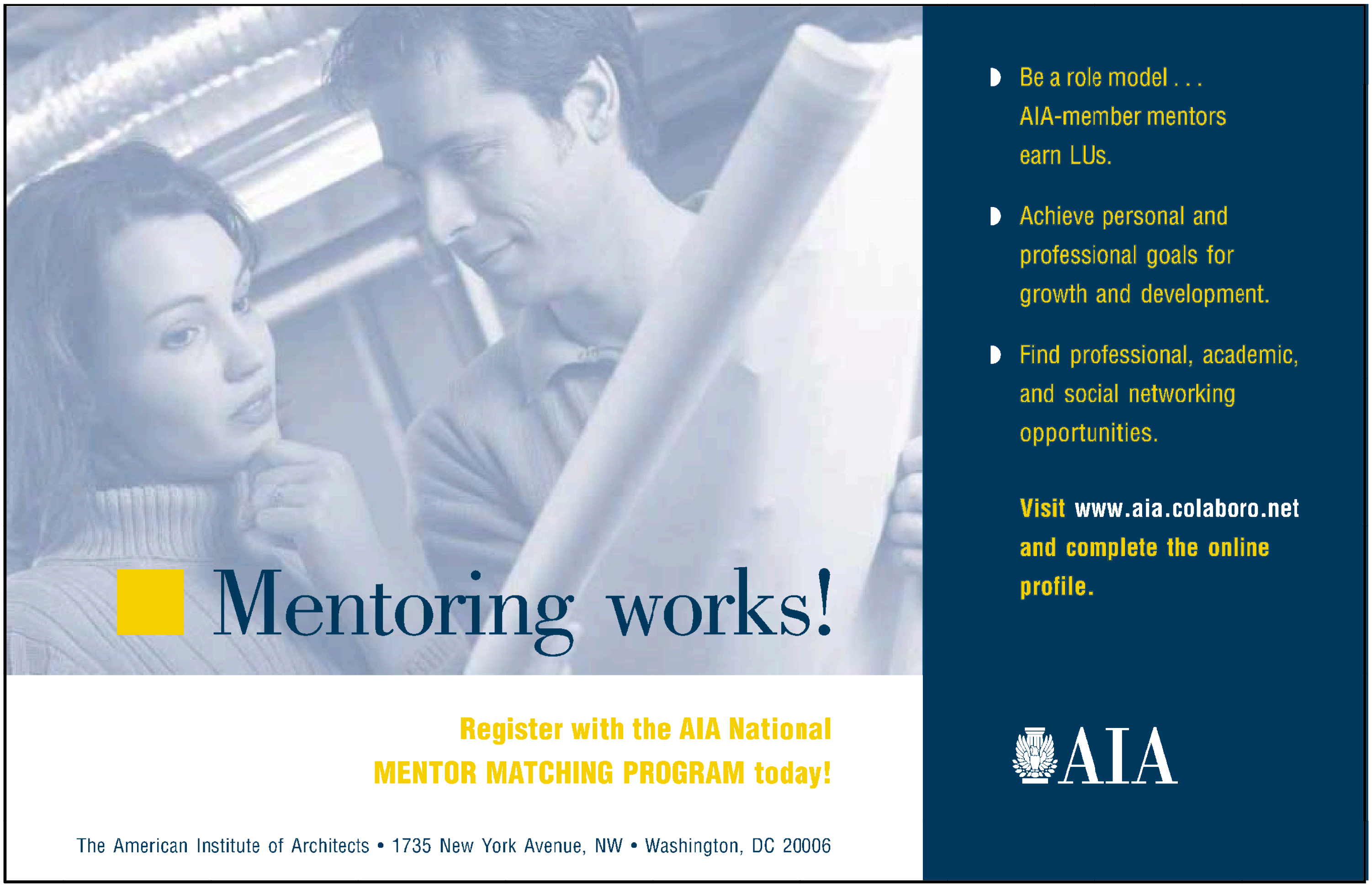

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www.modernoutdoor.com ⟳ 150

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Railing Systems

5 Metals

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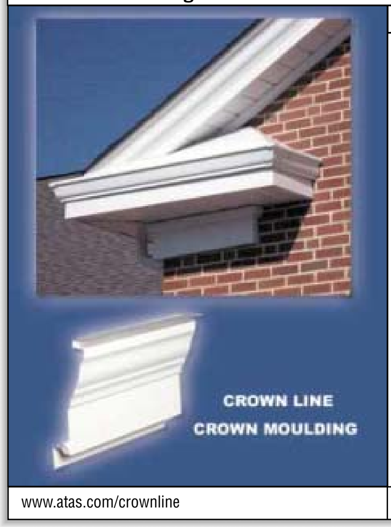

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www.atas.com/crownline ⟳ 151

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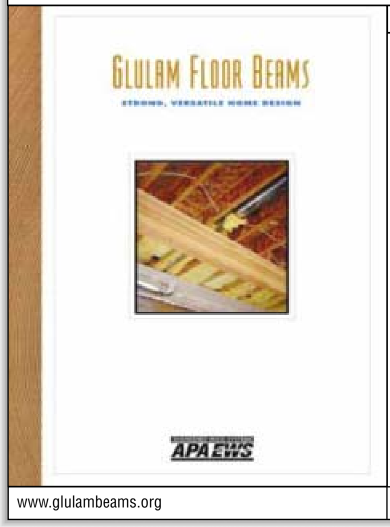

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APA EWS

6 Wood & plastics

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www.glulambeams.org ⟳ 154

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5 Metals

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Architectural Products

6 Wood & plastics

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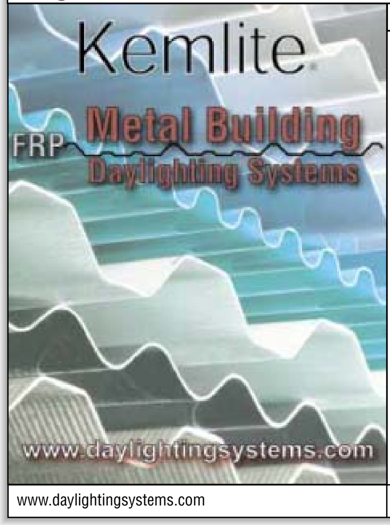

7 Thermal & moisture protection

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www.daylightingsystems.com | 156

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8 Doors & windows

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www.aluflam-usa.com | 157

Nathan Allan Glass Studios Inc.

Cast Glass Stair Treads

8 Doors & windows

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www.nathanallan.com | 158

OpenAire Inc.

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8 Doors & windows

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www.openaire.com | 159

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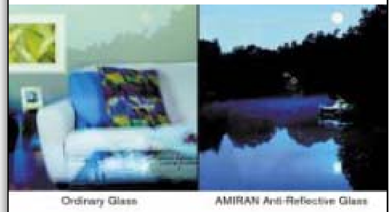

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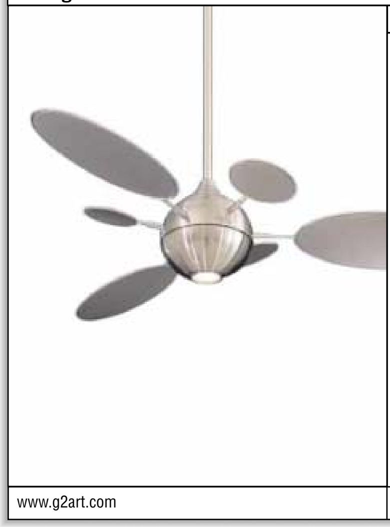

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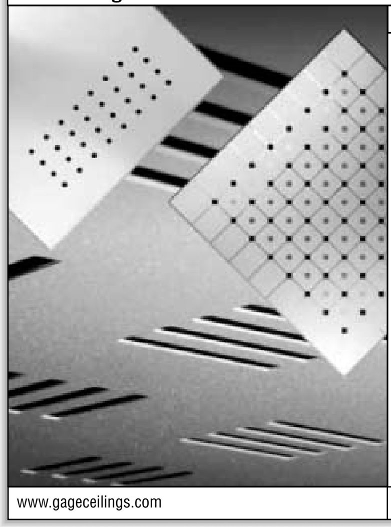

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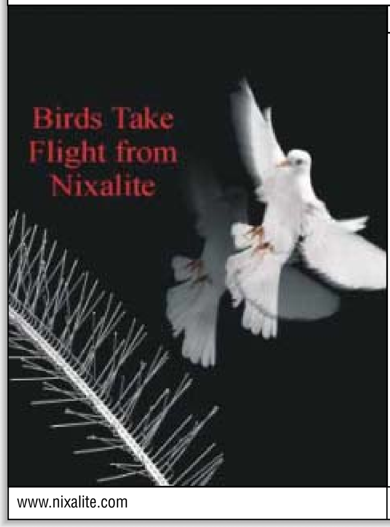

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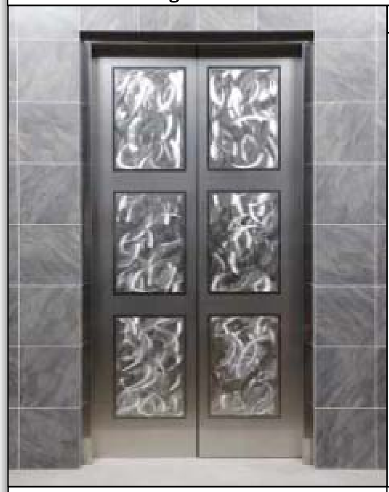

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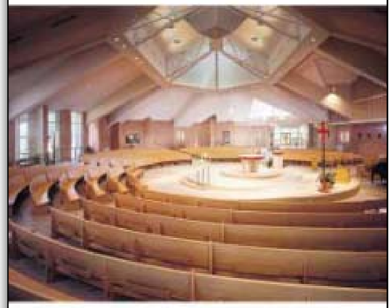

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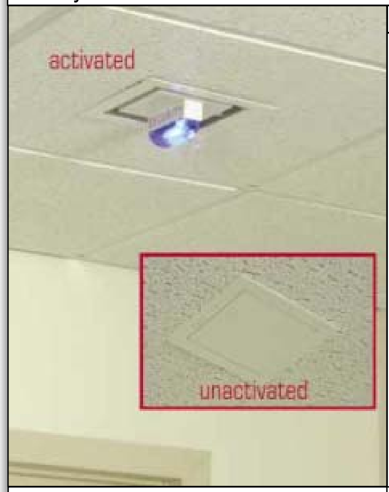

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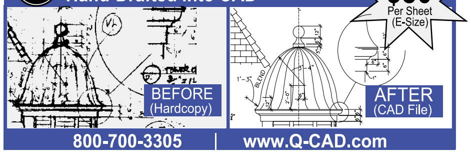

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ARCHITECTURAL RECORD CALL FOR ENTRIES

Record Interiors 2005

The editors of ARCHITECTURAL RECORD announce the RECORD INTERIORS awards program. Entry is open to any registered architect of any nationality. Of particular interest are innovations in program, building technology, form, and materials. The fee is $50 per submission; please make checks payable to ARCHITECTURAL RECORD. Submissions must also include plan(s), photographs (prints or large-format transparencies, no slides please), and a brief project description firmly bound in an 8½-by-11-inch folder—postmarked no later than April 29, 2005. Anonymity is not necessary. Winning entries will be featured in RECORD INTERIORS 2005. Other submissions will be returned or scheduled for a future issue. Please include a self-addressed envelope with the appropriate postage, and allow 10 weeks for notification.

Submissions should be mailed to:
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If you have any questions, please E-mail
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Type of project (i.e. residential, retail, etc.):_______________

If previously (or scheduled to be) published, please state magazine and publication date:

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Agreement: We will not offer this project for consideration by another national design magazine during the 10-week review period at ARCHITECTURAL RECORD.

Signature:______________________________

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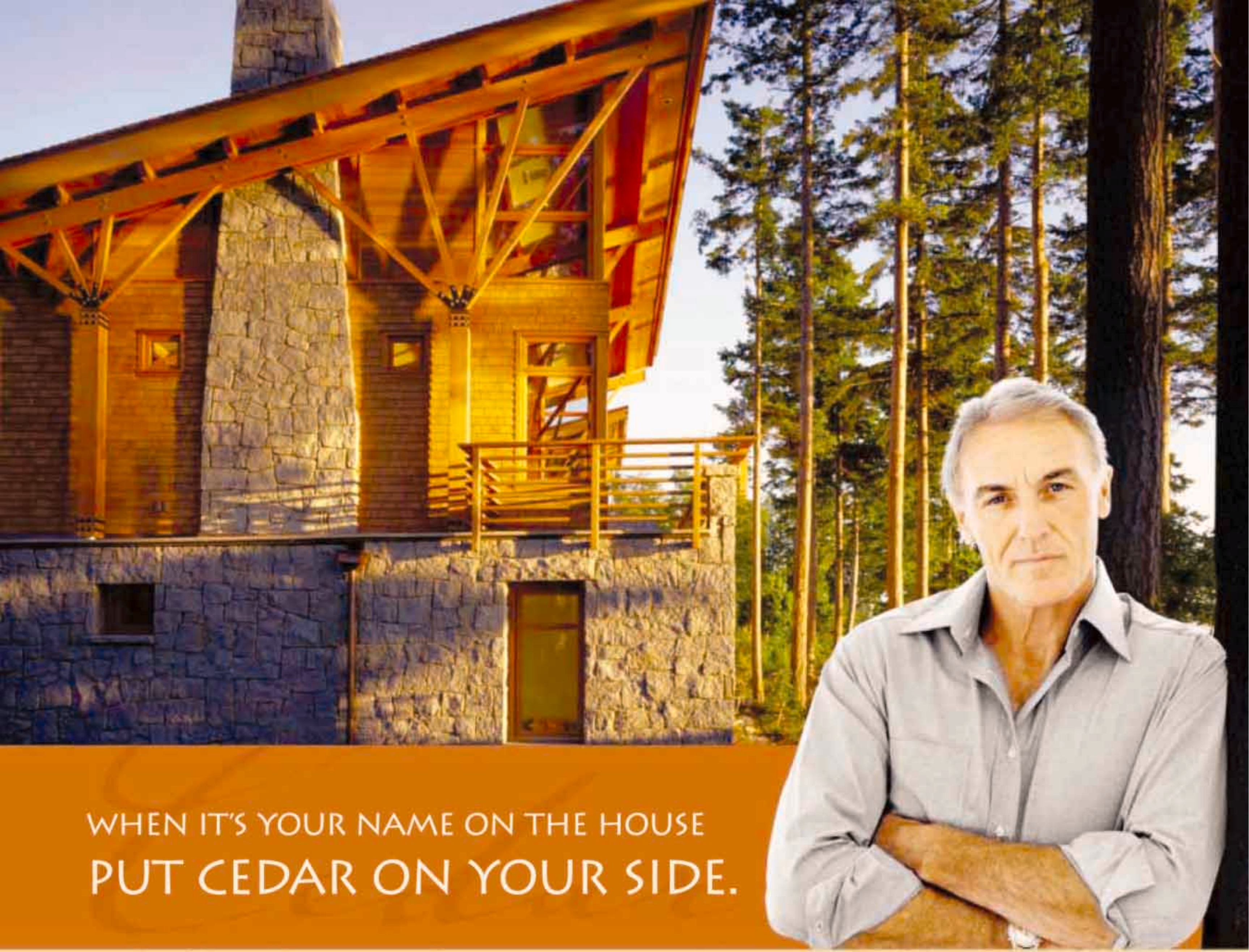

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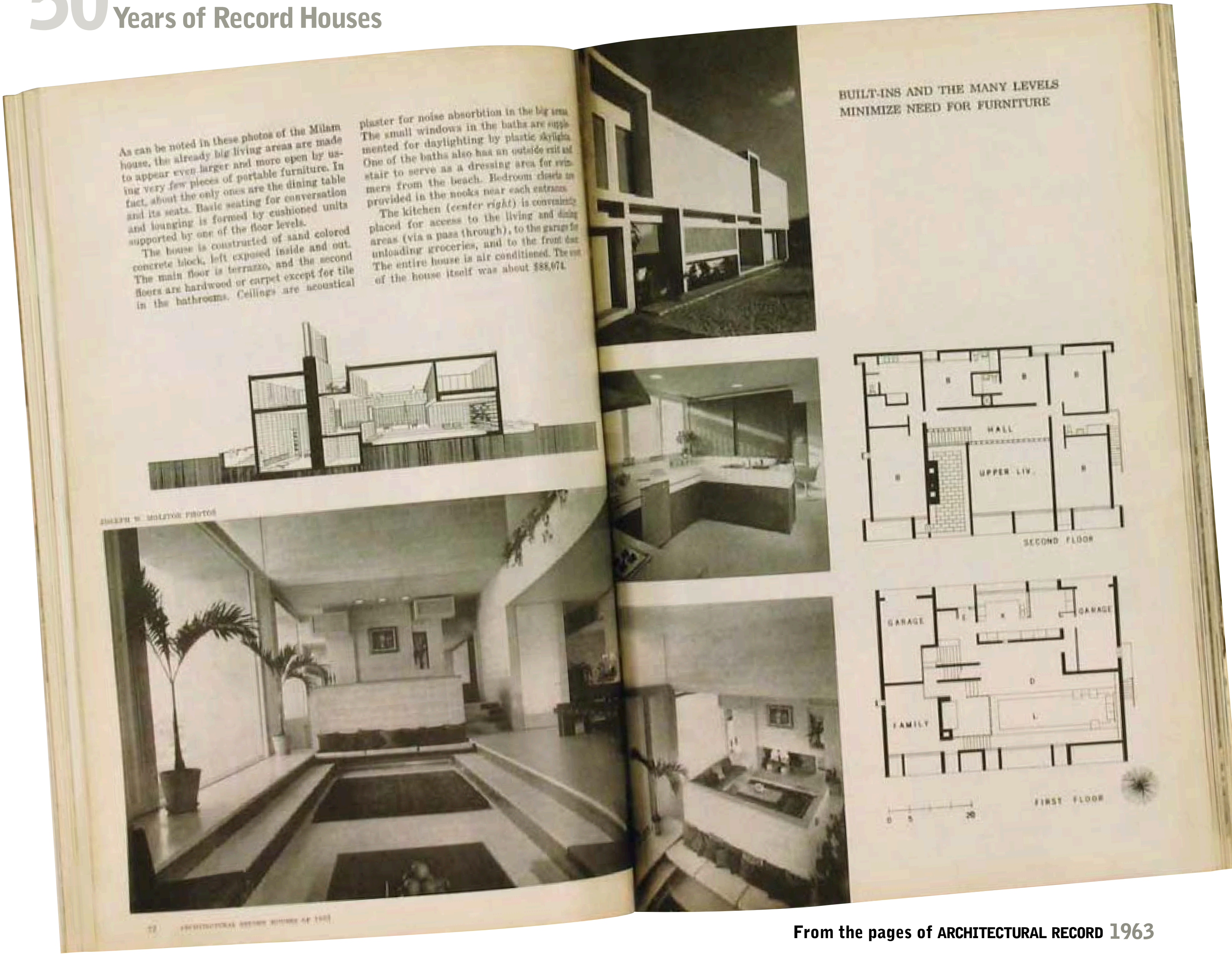


As can be noted in these photos of the Milam house, the already big living areas are made to appear even larger and more open by using very few pieces of portable furniture. In fact, about the only ones are the dining table and its seats. Basic seating for conversation and lounging is formed by cushioned units supported by one of the floor levels.

The house is constructed of sand colored concrete block, left exposed inside and out. The main floor is terrazzo, and the second floors are hardwood or carpet except for tile in the bathrooms. Ceilings are acoustical plaster for noise absorbtion in the big area. The small windows in the baths are supplemented for daylighting by plastic skylights. One of the baths also has an outside exit and stair to serve as a dressing area for swimmers from the beach. Bedroom closets are provided in the nooks near each entrance.

The kitchen (*center right*) is conveniently placed for access to the living and dining areas (via a pass through), to the garage for unloading groceries, and to the front door. The entire house is air conditioned. The cost of the house itself was about $88,074.

BUILT-INS AND THE MANY LEVELS MINIMIZE NEED FOR FURNITURE

JOSEPH W. MOLITOR PHOTOS

72 ARCHITECTURAL RECORD HOUSES OF 1963

From the pages of ARCHITECTURAL RECORD 1963

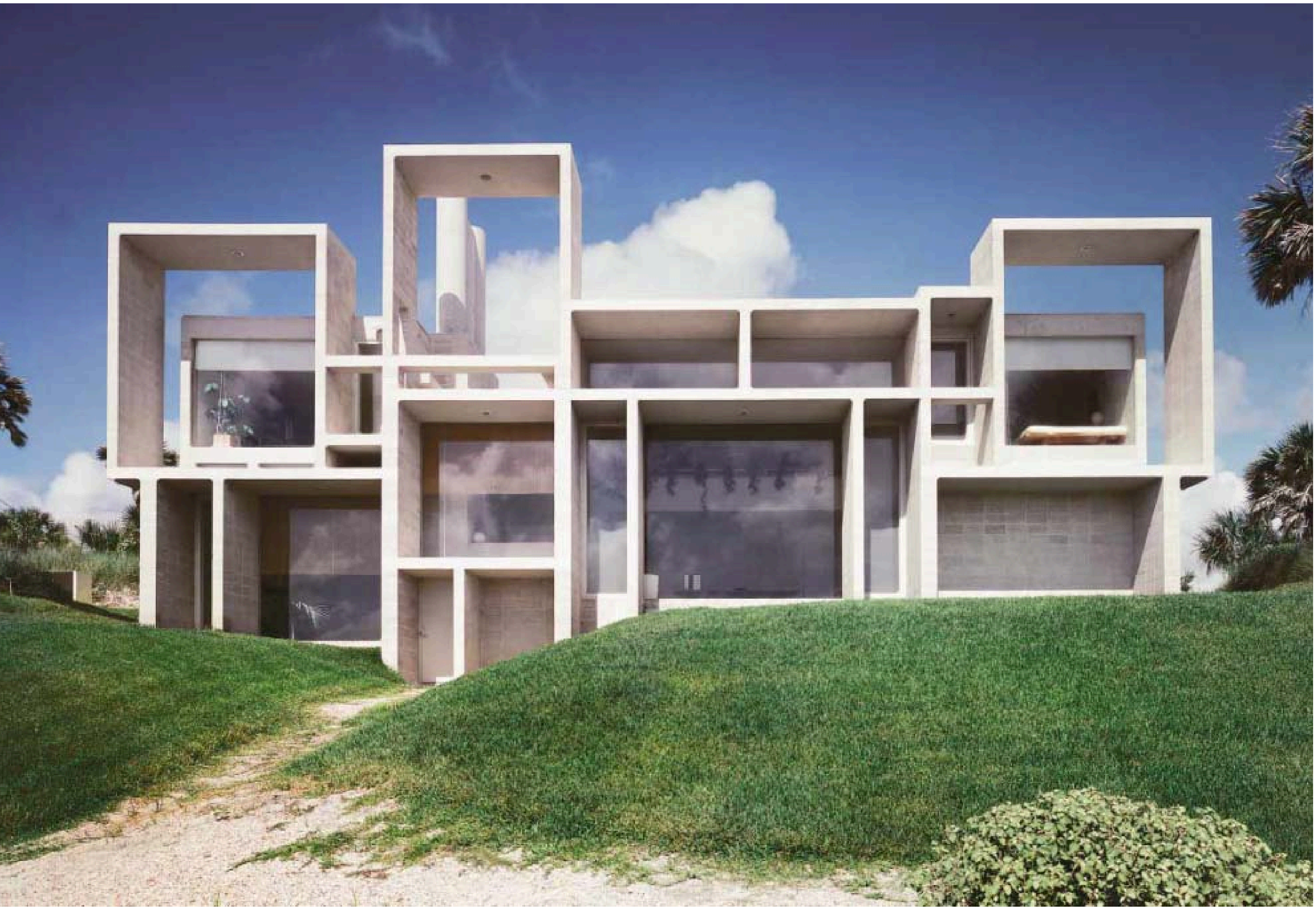
Chapter Two Started Here

By Clifford A. Pearson

PHOTOGRAPHY: © BILL MARIS/ESTO

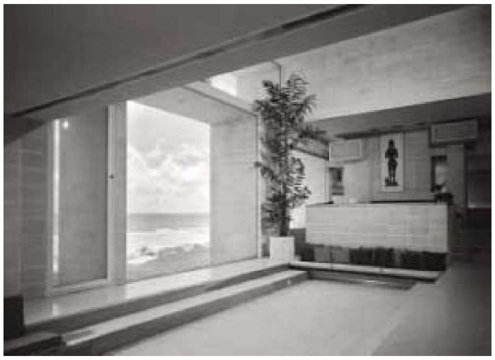
The last of Paul Rudolph's Florida houses, the Milam House in Ponte Vedra Beach, proved to be a pivotal work in the architect's illustrious career. Designed after he had ended his partnership in Sarasota with Ralph Twitchell in 1957, it points more to Rudolph's future than his past, explains Christopher Domin, the coauthor of *Paul Rudolph: The Florida Houses* (Princeton Architectural Press, 2002). While the earlier houses featured lightweight construction, modular organization, and interior spaces opening directly to the subtropical landscape, the Milam House, completed in 1962, takes a more muscular approach to design—using more concrete block and less steel or wood framing, and incorporating large, fixed panes of glass (and air-conditioning) instead of operable windows.

"Sculptural form making was always a part of Rudolph's work, but he pumped it up a notch in the Milam House," says Joseph King, the book's other author. Look at this house and you can clearly see the family resemblance to the much bigger and more controversial Art and Architecture Building at Yale, which opened just one year later. Walk inside and you'll find the



This page: **The beach facade (above) provides the classic image of the house. The sunken living room (below) is one of seven levels.**

Previous page: **Published in 1963 (top), the house shows a less transparent side to the west (bottom).**



(continued from previous page) multiple floor levels (seven here) that so captivated (or infuriated) users of Rudolph's later buildings. "It was a transition for Rudolph, but also for architecture as a whole," adds King.

It certainly hooked the editors of ARCHITECTURAL RECORD, who published it no fewer than four times in the 1960s: once as a project, once as part of an article on six houses by Rudolph, then in Record Houses, and finally in a retrospective look at the first decade of that annual issue. Cartoonist Alan Dunn also found the house irresistible, poking fun at it twice in the pages of RECORD. One of his cartoons shows a couple standing in front of the house's iconic beach facade as a man (the architect? the realtor who just sold it?) drives away and says, "One thing more—it still takes a heap o' livin', you know." The second cartoon shows a party in the house's famous sunken living room/conversation pit, but adds a second, smaller pit and a host explaining, "That one is for small talk."

Arthur Milam, the young lawyer who went to his college reunion at Yale in 1960 in large part to commission Rudolph to design him a house, has retired from the bar but still lives in the house. "It's a great house to live in," says Milam. "Each room has a different mood, and you get fantastic views of the water." In the early 1970s, Milam had Rudolph add two ancillary structures on either side of the main house—one for a three-car garage and one for a guest house/studio. Rudolph used the same materials and design vocabulary for the new wings.

Although corrosion from the salt air has required Milam to repair the concrete a couple of times, it's clear from him that the house still takes a heap o' livin'. ■

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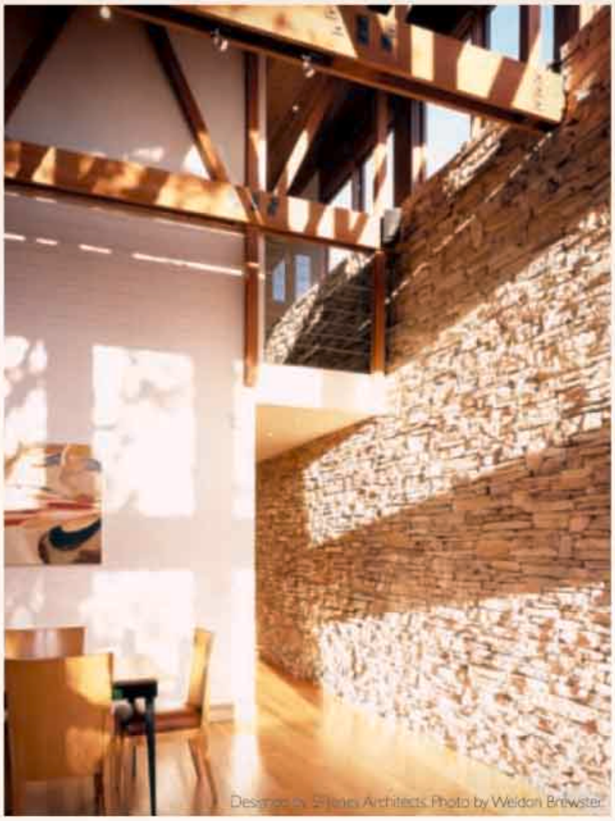

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